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The following are mailed under direction of the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402, to whom all subscriptions should be made payable and all communications addressed:

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PATENT AND TRADEMARK OFFICE NOTICES

Patent Cooperation Treaty Information

For information concerning the PCT member countries see the notice appearing in the Official Gazette at 1017 O.G. 10 on Apr. 13, 1982. For use of the European Patent Office as a Searching Authority for PCT applications filed in the United States, see the notice in the Official Gazette of Sept. 28, 1982 at 1022 O.G. 52.

Note that the domestic PCT fees have been increased as of Oct. 1, 1982 by a rule change to 37 CFR 1.445 that was published at 1021 O.G. 11 on Aug. 10, 1982. Also note that the international PCT fees have changed as of Jan. 1, 1983 and the Search Fee for the European Patent Office as Searching Authority changed as of Jan. 22, 1983. The notice regarding the change in international fees and the Search Fee for the European Patent Office appeared at 1025 O.G. 27, on 28 Dec. 1982. The current schedule of fees is as follows:

Transmittal fee	$ 125.00
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GERALD J. MOSSINGHOFF,
Dec. 3, 1982. *Commissioner of Patents and Trademarks.*

REISSUE APPLICATIONS FILED

Notice under 37 CFR 1.11(b). The reissue applications listed below are open to inspection by the general public in the indicated Examining Groups and copies may be obtained by paying the fee therefor (37 CFR 1.21(b)).

4,256,870, Re. S.N. 445,916, Filed Dec. 1, 1982, Cl. 528/15, SOLVENTLESS RELEASE COMPOSITIONS, METHODS AND ARTICLES OF MANUFACTURE, Richard P. Eckberg, Owner of Record: *General Electric Co., New York, N.Y.,* Attorney or Agent: Edward A. Hedman, et al., Ex. Gp.: 142

4,291,129, Re. S.N. 443,877, Filed Nov. 23, 1982, Cl. 521/103, COMPOSITION AND A METHOD FOR CONTROLLING REACTION PRESSURES DURING THE FOAMING PROCESS RESULTING IN AN EASILY FLAME RETARDED FOAM-IN PLACE INSULATION, Richard B. Kennedy, Owner of Record: *James C. Patrick and Richard J. Fricke, Ridgefield, Conn.,* Attorney or Agent: Anne M. Kornbau, et al., Ex. Gp.: 143

4,316,914, Re. S.N. 445,223, Filed Nov. 29, 1982, Cl. 424/305, ELECTROSTATICALLY SPRAYABLE INSECTICIDAL FORMULATIONS, Ronald A. Coffee, et al., Owner of Record: *Imperial Chemical Industries PLC, London, England,* Attorney or Agent: John W. Malley, et al., Ex. Gp.: 125

4,335,536, Re. S.N. 430,021, Filed Sept. 30, 1982, Cl. 046/74D, INFLATABLE THROWING TOY, Sidney H. Magid, et al., Owner of Record: *Inventor,* Attorney or Agent: J. Harold Nissen, et al., Ex. Gp.: 333

REQUESTS FOR REEXAMINATION FILED

Notice under 37 CFR 1.11(c). The requests for reexamination listed below are open to inspection by the general public in the indicated Examining Groups. Copies of the requests and related papers may be obtained by paying the fee therefor established in the Rules (37 CFR 1.21(b)).

In the event correspondence to the patent owner is not received, this notice will be considered to be constructive notice to the patent owner and reexamination will proceed (37 CFR 1.248(a)(5) and 1.525(b)).

4,198,080, Reexam. No. 90/000,320, Requested: Jan. 21, 1983, Cl. 285/277, TELESCOPING-TYPE CONNECTOR, Walter L. Carpenter, Owner of Record: *Baxter Travenol Laboratories, Inc., Deerfield, Ill.,* Attorney or Agent: Thomas R. Schuman, Ex. Gp.: 351, Requester: Organan Teknika B.V., The Netherlands

4,360,288, Reexam. No. 90/000,318, Requested: Jan. 20, 1983, Cl. 403/268, FIBERGLASS SUCKER ROD CONSTRUCTION, Woodrow T. Rutledge, Jr., et al., Owner of Record: *Fiberflex Products, Inc., Big Spring, Tex.,* Attorney or Agent: Hyer, Matthews & Reiter, Ex. Gp.: 351, Requester: Shakespeare Co., Columbia, S.C.

Patent Suits

Notices under 35 U.S.C. 290; Patent Act of 1952

3,132,329, John L. Penter, TIME DIVISION TELEMETERING APPARATUS, **filed** Oct. 25, 1982, D.C., C.D. Calif. (Los Angeles), Doc. 82 5499, *John L. Penter* v. *Exxon Union Bank, et al.*

3,202,539, The Brown-Bridge Mills, Inc., NON-CURLING GUMMED PAPER, **filed** July 27, 1982, D.C. Mass. (Boston), Doc. 82-1598, *The Brown-Bridge Mills, Inc.* v. *Eastern Fine Paper, Inc.* **Same, filed** Aug. 16, 1982, U.S. Court of Appeals (1st Circuit, Boston), Doc. 82-1642, *The Brown-Bridge Mills, Inc., et al* v. *Eastern Fine Paper, Inc.*

3,270,580, Dana Corp., GEAR SHIFT LOCKING DEVICE, **filed** Oct. 18, 1982, D.C., N.D. Ill. (Chicago), Doc. 82 C 6368, *Dana Corp.* v. *Muncie Power Products, Inc.*

3,319,346, John E. Schuster, METHOD AND APPARATUS FOR HEAT TREATING MOISTURE BEARING PARTICLES, **filed** Oct. 14, 1982, D.C. Minn. (Duluth), Doc. 5-82-326, *John E. Schuster* v. *Erie Mining Co.* Case dismissed on Dec. 20, 1982.

3,367,320, Jenn-Air Corp., SELF-VENTILATING COOKING RANGE, **filed** Mar. 13, 1980, D.C. Del. (Wilmington), Doc. 80-122, *Jenn-Air Corp.* v. *Modern Maid Co.* Plaintiff is the owner of Pat. No. 3,367,320 which is valid. Complaint and counterclaims dismissed with prejudice with each party bearing its own costs. Filed Oct. 21, 1982.

3,402,651, Cass A. Pieronek, AUTOMATIC FILM PROGRAMMER, **filed** Oct. 6, 1982, D.C. Ariz. (Phoenix), Doc. 82-1647 PHX, *Cass A. Pieronek* v. *Durst North America, Inc., et al.*

3,415,857, Albright & Wilson Ltd., PRODUCTION OF ORGANOTIN HALIDES, **filed** Sept. 27, 1982,

D.C., S.D. Ohio (Cincinnati), Doc. C-1-82-1008, *Albright & Wilson Ltd.* v. *Carstab Corp.* **Same, filed** Sept. 27, 1982, D.C. Del. (Wilmington), Doc. 82-647, *Albright & Wilson Ltd.* v. *Argus Chemical Corp.*

3,459,199, Jerry F. Connell, TEASING AND UNSNARLING IMPLEMENT, **filed** Apr. 2, 1981, D.C., N.D. Ala. (Birmingham), Doc. 81-C-0496-M, *Jerry F. Connell, et al* v. *Sears-Roebuck and Co.* Case closed Dec. 2, 1982.

3,465,441, Leonard I. Linkow, RING-TYPE IMPLANT FOR ARTIFICIAL TEETH; **3,729,825,** Oratronics, Inc., ORAL IMPLANT; **3,849,888,** Oratronics, Inc., BONE ADAPTING TISSUE PACKING POST SYSTEM, **filed** Aug. 13, 1982, D.C., S.D.N.Y., Doc. 82-Civ-5377 (CSH), *Oratronics, Inc.* v. *Leonard I. Linkow.*

3,471,017, Peter Gabor Kalman, FILTERING PROCESS AND APPARATUS, **filed** Oct. 7, 1982, D.C. Mass. (Springfield), Doc. 82-0346-F, *Peter Gabor Kalman* v. *The Berlyn Corp.*

3,480,410, Fansteel, Inc., WC-CrC-Co SINTERED COMPOSITE, **filed** Jan. 10, 1972, D.C., N.D. Ill. (Chicago), Doc. 72 C 72, *Fansteel, Inc.* v. *Carmet Co., et al.* All matters having been settled by the parties, this cause is dismissed with prejudice on Aug. 4, 1982.

3,493,496, Desalination Systems, Inc., PURIFIED WATER SUPPLY APPARATUS AND METHOD, **filed** Sept. 13, 1982, D.C., N.D. Ill. (Chicago), Doc. 82 C 5630, *Desalination Systems, Inc.* v. *Culligan International Co.* **Same, filed** Oct. 1, 1982, D.C., N.D. Ill. (Chicago), Doc. 82 C 6060, *Desalination Systems, Inc.* v. *Rainsoft Water Conditioning Co.*

3,506,070, Marathon Oil Co., USE OF WATER-EXTERNAL MICELLAR DISPERSIONS IN OIL RECOVERY; **3,506,071, same, filed** Feb. 26, 1982, D.C., C.D. Ill. (Peoria), Doc. 82-1043, *Marathon Oil Co.* v. *Tri Star Producing Co., Inc., et al.* Case closed per notice of dismissals on May 26, 1982.

3,506,071. (See 3,506,070.)

3,514,765, Shell Oil Co., SENSE AMPLIFIER COMPRISING CROSS COUPLED MOSFETS OPERATING IN A RACE MODE FOR SINGLE DEVICE PER BIT MOSFET MEMORIES; **3,678,473, same,** READ-WRITE CIRCUIT FOR CAPACITIVE MEMORY ARRAYS, **filed** Nov. 30, 1982, D.C., S.D. Tex. (Houston), Doc. H-82-3609, *Shell Oil Co.* v. *National Semiconductor Corp., et al.*

3,531,323, Aerospace Tools, Inc., CLEANING APPARATUS AND METHOD, **filed** Sept. 30, 1982, U.S. Court of Claims (Wash. D.C.), Doc. 504-82 C, *Aerospace Tools, Inc.* v. *The United States.*

3,539,751, Melvin L. Levinson, INSULATING IMPLEMENT FOR USE IN A MICROWAVE OVEN; **3,777,099, same,** METHODS OF HEATING AN ARTICLE IN A MICROWAVE OVEN; **3,854,023, same;** MICROWAVE OVEN HEATING MEMBER; **3,985,991, same,** METHODS OF MICROWAVE HEATING IN METAL CONTAINERS, **filed** Dec. 7, 1981, D.C.N.J. (Newark), Doc. 81-3763, *Melvin L. Levinson* v. *Litton Systems, Inc.*

3,601,923, Bruce L. Rosenberg, AMUSEMENT DEVICE EMPLOYING DILATANT SUSPENSION FILLER, **filed** Jan. 2, 1982, D.C., S.D. Ohio (Cincinnati), Doc. C-1-82-0046, *Bruce L. Rosenberg,* v. *CPG Products Corp.* Stipulation and Order of dismissal filed Oct. 4, 1982.

3,609,300, John W. Halpern, AUTOMATIC FARE CHARGING DEVICE **filed** Nov. 24, 1981, D.C. District of Columbia (Wash. D.C.), Doc. 81-2853, *John W. Halpern* v. *Washington Metropolitan Area Transit Authority.* Order dismissing action with prejudice filed Oct. 7, 1982.

3,615,972, Morehouse and Tetreault, EXPANSIBLE THERMOPLASTIC POLYMER PARTICLES CONTAINING VOLATILE FLUID FOAMING AGENT AND METHOD OF FORMING THE SAME, **filed** Sept. 11, 1981, D.C.N.J. (Newark), Doc. 81-2870, *Pierce & Stevens Chemical Corp.* v. *Spectrachem Corp.* Consent judgment dismissing action filed July 23, 1982.

3,619,887, William M. McLaughlin, TOOL FOR FORCIBLY REMOVING A CYLINDER FROM A LOCK, **filed** Oct. 7, 1982, D.C., E.D. Pa. (Philadelphia), Doc. 82-4402, *William M. McLaughlin* v. *Ziamatic Corp.*

3,644,936, Boole & Babbage, Inc., METHOD FOR MEASURING PERFORMANCE OF A GENERAL PURPOSE DIGITAL COMPUTER, **filed** Sept. 13, 1982, D.C., C.D. Calif. (Los Angeles), Doc. 82 4758, *Candle Corp.* v. *Boole & Babbage, Inc.*

3,649,532, John O. McLean, METHOD OF TREATING WATER, **filed** Oct. 14, 1982, D.C., N.D. Ind. (Fort Wayne), Doc. F-82-417, *Chemical Engineering Corp. and John O. McLean* v. *Essef Industries, Inc., et al.*

3,659,284, Sanders Associates, Inc., TELEVISION GAMING APPARATUS; **Re. 28,507, same, filed** Sept. 28, 1982, D.C., N.D. Calif. (San Francisco), Doc. 82-5270 TEH, *Magnavox Co. and Sanders Associates, Inc.* v. *Activision, Inc.*

3,659,915, Corning Glass Works, FUSED SILICA OPTICAL WAVEGUIDE; **3,711,262, same,** METHOD OF PRODUCING OPTICAL WAVEGUIDE FIBERS; **3,823,995, same,** METHOD OF FORMING LIGHT FOCUSING FIBER WAVEGUIDE; **3,884,550, same,** GERMANIA CONTAINING OPTICAL WAVEGUIDE, **filed** July 23, 1982, D.C. Mass. (Springfield), Doc. 82-0260-F, *Corning Glass Works* v. *Valtec Corp.*

3,666,284, Deere & Co., HYDRAULIC DEPTH CONTROL FOR DRAWN IMPLEMENT CARRIERS HAVING PIVOTED OUTER FRAMES; **3,700,039, same,** SPRING TRIP SHANK ASSEMBLY, **filed** July 15, 1979, D.C., S.D. Iowa (Des Moines), Doc. 79-2167, *Deere & Co.* v. *Hesston Corp.* Final judgment entered Nov. 30, 1982.

3,678,473. (See 3,514,765.)

3,688,985, Walter H. Engel, PLASTIC ARTICLE OF MANUFACTURE IMPREGNATED WITH VOLATILE MATTER, **filed** Nov. 1, 1982, D.C.N.J. (Newark), Doc. 82-3646, *Dr. Walter H. Engel* v. *Beecham Products, Inc.*

3,700,039. (See 3,666,284.)

3,701,872, Melvin L. Levinson, HEATING AND LOADING IMPLEMENT FOR MICROWAVE ENERGY; **3,731,037, same,** MICROWAVE KILN TO COOK FOOD; **3,777,099, same,** METHODS OF HEATING AN ARTICLE IN A MICROWAVE OVEN; **3,985,990, same,** MICROWAVE OVEN BAKING UTENSIL; **4,317,017, same,** MICROWAVE STEAMER, **filed** Dec. 6, 1982, D.C.N.J. (Newark), Doc. 82-4096-B, *Melvin L. Levinson* v. *Raytheon Co.*

3,711,262, Corning Glass Works, METHOD OF PRODUCING OPTICAL WAVEGUIDE FIBERS; **3,823,995, same,** METHOD OF FORMING LIGHT FOCUSING FIBER WAVEGUIDE; **3,884,550, same,** GERMANIA CONTAINING OPTICAL WAVEGUIDE, **filed** July 14, 1976, D.C., W.D. Va. (Roanoke), Doc. 76-0144, *Corning Glass Works* v. *International Telephone and Telegraph Corp.* Consent judgment entered July 27, 1981.

3,711,262. (See 3,659,915.)

3,729,825. (See 3,465,441.)

3,731,037. (See 3,701,872.)

3,738,612, American Seating Co., ADVANCING AND RETRACTING MECHANISM, **filed** Aug. 2, 1982, D.C., W.D. Mich. (Grand Rapids), Doc. G82-505 CA1, *American Seating Co.* v. *Interkal, Inc.* Plaintiff is the owner of Pat. No. 3,738,612 which is valid and enforceable. Defendant shall not infringe plaintiff's patent. Filed Oct. 7, 1982.

3,745,026. Swift & Co., CARCASS CHILLING PROCESS, **filed** June 7, 1978, D.C., W.D. Okla. (Oklahoma City), Doc. 78-0578-D, *Swift & Co.* v. *Wilson Foods Corp.* Consent judgment entered Aug. 3, 1982.

3,758,682, Diagnostic Data, Inc., PHARMACEUTICAL COMPOSITIONS COMPRISING ORGOTEIN AND THEIR USE; **3,773,929, same, filed** May 13, 1980, D.C., N.D. Calif. (San Francisco), Doc. C80-1866 WHO, *Palolab Pharmaceuticals Corp., et al* v. *Diagnostic Data, Inc.* Stipulation and Order for dismissal with prejudice filed Mar. 2, 1982.

3,773,929. (See 3,758,682.)

3,777,099. (See 3,539,751 and 3,701,872.)

3,777,778, George J. Janu, TWO-POSITION LIQUID LEVEL CONTROLLER, **filed** July 21, 1982, D.C., N.D. Ill. (Rockford), Doc. 82 C 20121, *Burton Mechanical Contractors, Inc.* v. *Envirovac, Inc.*

3,782,708, Kuhlman Corp., SPRING ASSEMBLY AND METHODS AND MACHINES FOR THE MANUFACTURE THEREOF, **filed** Sept. 16, 1982, D.C., E.D. Mich. (Detroit), Doc. 82-73476, *Kuhlman Corp.* v. *P.J. Wallbank Springs, Inc.*

3,784,047, Alfred Cooper, SAFETY CLOSURE CAP, **filed** Aug. 26, 1982, D.C., N.D. Calif. (San Francisco), Doc. 82-4571, *Alfred Cooper* v. *Ford Motor Co., et al.*

3,817,860, Lambert and Fina, METHOD OF DISINFECTING WATER AND DEMAND BACTERICIDE FOR USE THEREIN; **3,923,665, same,** DEMAND BACTERICIDE FOR DISINFECTING WATER AND PROCESS OF PREPARATION; **4,187,183,** Gary L. Hatch, MIXED-FORM POLYHALIDE RESINS FOR DISINFECTING WATER; **4,190,529,** Gary L. Hatch, MIXED-FORM POLYHALIDE RESINS FOR DISINFECTING WATER, **filed** July 13, 1982, D.C., N.D. Ill. (Chicago), Doc. 82 C 4330, *Water Technologies Corp., et al* v. *Calco, Inc., et al.*

3,822,506, Door Controls, Inc., DOOR COORDINATING DEVICE, **filed** Nov. 12, 1982, D.C., E.D. Mich. (Ann Arbor), Doc. 82-60378, *Door Controls, Inc.* v. *Leigh Products, Inc.*

3,823,995. (See 3,659,915 and 3,711,262.)

3,827,490, Camco, Inc., APPARATUS FOR INSTALLING AND REMOVING FLOW VALVES, **filed** Sept. 16, 1977, D.C., N.D. Tex. (Dallas), Doc. CA3-77-1262-C, *Camco, Inc., et al* v. *Teledyne Industries, Inc., doing business as Teledyne Merla.* Final Judgment filed Oct. 29, 1982.

3,849,888. (See 3,465,441.)

3,851,972, Coulter Electronics, Inc., AUTOMATIC METHOD AND SYSTEM FOR ANALYSIS AND REVIEW OF A PLURALITY OF STORED SLIDES, **filed** Nov. 19, 1982, D.C., E.D. Pa. (Philadelphia), Doc. 82-5163, *Coulter Electronics, Inc.* v. *SmithKline Corp.*

3,854,023. (See 3,539,751.)

3,884,550. (See 3,659,915 and 3,711,262.)

3,900,250, Rynco Scientific Corp., SEMI-RIGID, GAS PERMEABLE CONTACT LENSES, **filed** Oct. 27, 1982, D.C., C.D. Calif. (Los Angeles), Doc. 82-5548, *Rynco Scientific Corp.* v. *Security Contact Lens Corp., et al.*

3,903,878, Donald C. Spann, DEVICE FOR SUPPORTING A LIMB AND ASSOCIATED EXTREMITY; **3,938,205, same,** BODY POSITIONER; **3,939,829, same,** RESTRAINING CUFF; **3,946,451, same,** LIMB SUPPORT; **4,108,170, same,** PATIENT SUPPORT STRAP; **4,135,504, same,** ORTHOPEDIC SUPPORT, **same, filed** May 2, 1980, D.C., M.D. Fla. (Jacksonville), Doc. 80-397-Civ-J-M, *Span-America, Inc. and Donald C. Spann* v. *National Medical Products, Inc., doing business as Posi-Block.*

3,907,332, Donald G. Richardson, SUSPENSION SYSTEM, **filed** July 30, 1982, D.C., C.D. Calif. (Los Angeles), Doc. 82-3826, *Donald G. Richardson* v. *Kawasaki, et al.*

3,911,868, Chore-Time Equipment, Inc., POULTRY FEEDER, **filed** May 23, 1980, D.C., E.D. Tenn. (Chattanooga), Doc. 1-80-137, *Chore-Time Equipment, Inc.* v. *Cumberland Corp.* Patent No. 3,911,868 issued to Howard S. Brembeck and assigned to plaintiff is adjudged invalid and this lawsuit dismissed, the issue of infringement having been rendered moot, per judgment of dismissal filed Sept. 14, 1982.

3,923,665. (See 3,817,860.)

3,938,205. (See 3,903,878.)

3,939,762, Big Elk Wood Corp., APPARATUS FOR BUNDLING FIREWOOD; **4,072,094, same,** METHOD FOR BUNDLING FIREWOOD, **filed** Aug. 5, 1980, D.C. Colo. (Denver), Doc. 80-A-1030, *Big Elk Wood Corp.* v. *Carlson Stapler & Shippers Supply, Inc.* Complaint, amended complaint and counterclaims dismissed with prejudice per order filed Apr. 12, 1982.

3,939,829. (See 3,903,878.)

3,946,451. (See 3,903,878.)

3,948,680, Gould, Inc., LEAD-ACID STORAGE BATTERY CAPABLE OF ACTIVATION BY THE ADDITION OF ELECTROLYTE; **3,988,165, same,** METHOD OF MAKING A LEAD-ACID STORAGE BATTERY, AND CELL, CAPABLE OF ACTIVATION BY THE ADDITION OF ELECTROLYTE, **filed** Mar. 1, 1977, D.C. Del. (Wilmington), Doc. 77-73, *Gould, Inc.* v. *Northwest Industries, Inc., et al.* Patent Nos. 3,948,680 and 3,988,165 are valid and were willfully infringed by defendant, per order dated July 19, 1982.

3,948,680, Gould, Inc., LEAD-ACID STORAGE BATTERY CAPABLE OF ACTIVATION BY THE ADDITION OF ELECTROLYTE, **filed** May 6, 1976, D.C. Del. (Wilmington), Doc. 76-162, *General Battery* v. *Gould, Inc.* Patent Nos. 3,948,680 and 3,988,165 are valid and were willfully infringed by defendant, per order dated July 19, 1982.

3,952,383, Chivas Products Ltd., STRAP FITTING FOR AUTOMOBILE INTERIOR AND OTHER USES; **3,977,054, same, filed** Nov. 12, 1982, D.C., E.D. Mich. (Detroit), Doc. 82-74274, *Chivas Products Ltd.* v. *Voplex Corp.*

3,953,566, W. L. Gore & Associates, Inc., PROCESS FOR PRODUCING POROUS PRODUCTS, **filed** Nov. 2, 1979, D.C., N.D. Ohio (Cleveland), Doc. 79-2074, *W. L. Gore & Associates, Inc.* v. *Garlock, Inc.* Memorandum of Opinion that court holds Pat. No. 3,953,566 invalid under 35 U.S.C. §102,103 and 112, and judgment is entered for defendant. Filed Nov. 19, 1982.

3,954,163, Xerox Corp., HIGH SPEED PRINTER WITH INTERMITTENT PRINT WHEEL AND CARRIAGE MOVEMENT, **filed** Aug. 5, 1982, D.C., N.D. Ill. (Chicago), Doc. 82 C 4824, *Xerox Corp.* v. *Olivetti Corp.*

3,968,256, Edmond L. Sing, PREPARATION OF COTTAGE CHEESE; **4,318,928, same,** PREPARATION OF COTTAGE CHEESE CONTAINING STREPTOCOCCUS DIACETILACTIS; **4,351,904,**

same, BLEND OF NORMAL AND MUTANT STREPTOCOCCUS DIACETILACTIS, **filed** Nov. 9, 1982, D.C., M.D. Fla. (Tampa), Doc. 82-1239 CIV T BK, *Edmond L. Sing* v. *Microlife Technics, Inc.*

3,977,054. **(See 3,952,383.)**

3,981,984, Colorcon, Inc., COLOR FILM COATING OF TABLETS AND THE LIKE, **filed** Aug. 25, 1982, D.C., C.D. Pa. (Philadelphia), Doc. 82-3716, *Colorcon, Inc.* v. *Crompton & Knowles Corp.*

3,983,482, Bell Telephone Laboratories, Inc., DELAYED PULSE TRANSMISSION SYSTEMS, **filed** Sept. 27, 1982, U.S. Court of Claims (Wash. D.C.), Doc. 487-82 C, *Western Electric Co., Inc., et al* v. *The United States of America.*

3,985,990. **(See 3,701,872.)**

3,985,991. **(See 3,539,751.)**

3,988,165. **(See 3,948,680.)**

3,990,767, Thomas & Betts Corp., ELECTRICAL CONTACT AND CONNECTOR MEANS EMPLOYING SAME, **filed** Dec. 27, 1978, D.C. Del. (Wilmington), Doc. 78-552, *Thomas & Betts Corp.* v. *Winchester Electronics Division of Litton Systems, Inc.* Pat. No. 3,990,767 is valid and infringed by defendant's manufacture and sale of its "double strut" electrical connector construction but not infringed by its "single strut" connector construction. Filed Oct. 8, 1982.

3,993,520, Frank D. Werner, WINDSHIELD REPAIR APPARATUS AND METHOD, **filed** June 7, 1982, D.C. Minn. (Minneapolis), Doc. 4-82 Civil 802, *Novus, Inc. and Frank D. Werner* v. *International Glass Repair of St. Paul, Ltd., et al.* Pat. No. 3,993,520 was valid and legally issued. Defendants are permanently enjoined from further infringing plaintiff's patent. Filed Dec. 9, 1982. **Same, filed** Dec. 3, 1981, D.C. Minn. (Minneapolis), Doc. 4-81 Civ. 835, *Novus, Inc. and Frank D. Werner* v. *Hare D. Stuart, et al.* Pat. No. 3,993,520 was valid and legally issued. Defendants are permanently enjoined from further infringing plaintiff's patent. Filed Dec. 9, 1982.

4,007,761, Union Carbide Corp., PREPACKAGED SHIRRED TUBULAR CASING ARTICLE, **filed** Apr. 4, 1980, D.C., C.D. Ill. (Danville), Doc. 80-2073, *Union Carbide Corp.* v. *Teepak, Inc.* Consent Order filed Sept. 3, 1982.

4,013,134, The Richmond Mfg. Co., PORTABLE EARTH BORING MACHINE WITH STEERING HEAD, **filed** Mar. 20, 1979, D.C., N.D. Ohio (Cleveland), Doc. C79-509, *The Richmond Mfg. Co.* v. *Allied Steel & Tractor Products Co., Inc.* Plaintiff is the owner of Pat. No. 4,013,134 which is valid. Defendant is permanently enjoined from further infringing plaintiff's patent. Filed Sept. 14, 1982.

4,014,648, Microfibres, Inc., IN-LINE FLOCK CUTTING PROCESS, **filed** Dec. 6, 1982, D.C., S.D.N.Y., Doc. 82-Civ-8099 (WK), *Microfibres, Inc.* v. *M. Lowenstein Corp.*

4,015,299, Robert Tinnel, WATER BED, **filed** Apr. 21, 1980, D.C., N.D. Calif. (San Francisco), Doc. C80 1544 WAI, *Ultimate Water Bed Co. and Robert Tinnel* v. *J. C. Penney Co., Inc.* Plaintiff to take nothing, action dismissed on merits, and defendants to recover from plaintiff its costs of action. Filed Sept. 10, 1982.

4,020,854, Lorenzo Caruso, DEVICE AND METHOD FOR PROGRAMMED HAIR COLORING, **filed** Sept. 3, 1982, D.C., N.D. Calif. (San Francisco), Doc. C-82-4725-SW, *Lorenzo Caruso* v. *Clairol, Inc.*

4,024,734, Trip-Lite Ltd., YARN FAULT DETECTORS; **D. 246,292, same,** YARN FAULT DETECTOR, **filed** Aug. 9, 1982, D.C., N.D.N.Y. (Utica), Doc. 82-Civ-825, *Trip-Lite Ltd.* v. *Kencap Products, Inc.*

4,044,444, Richard T. Harris, TUBE TRAVELER, **filed** Oct. 18, 1982, D.C., E.D. Va. (Norfolk), Doc. 82-774-N, *Richard T. Harris* v. *Atlantic Nuclear Services, Inc.*

4,048,672, T-Bar, Inc., SWITCH MATRIX CONTROL AND DISPLAY, **filed** July 31, 1981, D.C. Conn. (Bridgeport), Doc. B-81-347, *T-Bar, Inc.* v. *Data Switch Corp., et al.*

4,051,683, Jennmar Corp., METHOD AND APPARATUS FOR SUPPORTING A MINE ROOF; **Reg. No. 1,165,222** (COMBINATION), Jennmar Corp., **filed** Oct. 26, 1982, D.C., W.D. Pa. (Pittsburgh), Doc. 82-2254, *Jennmar Corp.* v. *Republic Corp.*

4,051,683, Jennmar Corp., METHOD AND APPARATUS FOR SUPPORTING A MINE ROOF, **filed** Nov. 16, 1982, D.C., S.D. Ohio (Columbus), Doc. C-2-82-1460, *Jennmar Corp.* v. *Pattin Mfg. Co.*

4,057,251, Arachnid, Inc., DART GAME WITH APERTURED TARGET PLATES RESILIENTLY MOUNTED, **filed** Sept. 28, 1982, D.C., N.D. Ill. (Chicago), Doc. 82 C 5970, *Arachnid, Inc.* v. *Industrial Design Engineering Associates, Ltd., et al.*

4,063,059, W. A. Whitney Corp., PUNCH PRESS WITH CUTTING TORCH; **4,338,507, same,** WATER-QUENCHED COLLECTION SYSTEM FOR USE WITH A PLASMA-ARC TORCH, **filed** Oct. 21, 1982, D.C., N.D. Ill. (Chicago), Doc. 82 C 6431, *W. A. Whitney Corp.* v. *Trumpf America, Inc., et al.*

4,072,094. **(See 3,939,762.)**

4,078,265, Teresa Helena Condit, REVERSIBLE ATHLETIC JERSEY; **4,296,498,** Joseph J. Vinson, REVERSIBLE GARMENT, **filed** Aug. 27, 1982, D.C., S.D. Ohio (Cincinnati), Doc. C-1-82-846, *Teresa H. Condit* v. *Joseph J. Vinson.*

4,079,584, American Hoist & Derrick Co., HEAVY DUTY SHACKLE, **filed** Aug. 27, 1979, D.C. Ore. (Portland), Doc. 79-983 PA, *American Hoist & Derrick Co.* v. *Sowa & Sons, Inc.* Case closed on Oct. 19, 1982.

4,087,124, Rudkin-Wiley Corp., ILLUMINATED DRAG REDUCING SYSTEM, **filed** Oct. 8, 1982, D.C., N.D. Ohio (Cleveland), Doc. 82-2719Y, *Rudkin-Wiley Corp.* v. *Premix, Inc.*

4,102,377, Nels M. Ostrem, STEERING WHEEL COVER DEVICE, **filed** Sept. 17, 1982, D.C., C.D. Calif. (Los Angeles), Doc. 82 4852, *Nels M. Ostrem* v. *What's New, Inc., et al.*

4,107,046, Teledyne Industries, Inc., WATER PURIFIER, **filed** Dec. 9, 1982, D.C., N.D. Ill. (Chicago), Doc. 82C7525, *Teledyne Industries, Inc.* v. *Associated Mills, Inc.*

4,108,170. **(See 3,903,878.)**

4,108,415, Guyray Industries, Inc., ROCKER SUSPENSION SYSTEM, **filed** Mar. 3, 1982, D.C. Mass. (Springfield), Doc. 82-0091-F, *Dutailier, Inc.* v. *Guyray Industries, Inc.* Voluntary dismissal by plaintiff filed Sept. 10, 1982.

4,120,524, D G Shelter Products Co., DEVICE FOR OPENING, CLOSING AND LATCHING A VENT CLOSURE MEMBER; **Re. 30,969, same, filed** Oct. 6, 1982, D.C., C.D. Calif. (Los Angeles), Doc. 82 5209, *D G Shelter Products Co.* v. *West Custom Windows, Inc., et al.* **Same, filed** Nov. 17, 1982, D.C., C.D. Calif. (Los Angeles), Doc. 82 5951, *D G Shelter Products Co.* v. *Reflectolite Products, Inc., et al.*

4,123,506, Deuterium Corp., IMPROVEMENTS IN UTILIZATION OF IMPURE STEAM CONTAMINATED WITH HYDROGEN SULFIDE; **4,202,864, same,** PROCESS FOR CONTROLLING ENVIRONMENTAL POLLUTION FROM STEAM CONTAINING HYDROGEN SULFIDE; **4,242,305, same,** APPARATUS FOR CONTROLLING EMISSIONS OF

HYDROGEN SULFIDE FROM A SYSTEM UTILIZING GEOTHERMAL STEAM, **filed** July 8, 1981, D.C., S.D.N.Y., Doc. 81-Civ-4232, *EIC Laboratories, Inc.* v. *Deuterium Corp.* Notice of dismissal filed Mar. 9, 1982. **Same, filed** Aug. 26, 1982, U.S. Court of Claims (Wash. D.C.), Doc. 425-82 C, *Deuterium Corp.* v. *The United States of America.*

4,130,920, Siarto Machine & Tool Co., Inc., MACHINE TOOL; **4,200,182, same,** METHOD OF MACHINING; **4,209,088, same,** MACHINE TOOL, **filed** Feb. 24, 1981, D.C., E.D. Mich. (Detroit), Doc. 81-70586, *Ringtransfer, Inc.* v. *Siarto Machine & Tool Co., Inc., et al.* Order of dismissal of complaint, counterclaims and third party complaint filed July 29, 1982.

4,132,029, Positive Pyramids, Inc., PYRAMID FLYER, **filed** Oct. 13, 1982, D.C. Colo. (Denver), Doc. 82-C-1709, *Pyramid Creations, Inc.* v. *Positive Pyramids, Inc.*

4,135,504. (See 3,903,878.)

4,136,359, Apple Computer, Inc., MICROCOMPUTER FOR USE WITH VIDEO DISPLAY; **4,278,972, same,** DIGITALLY-CONTROLLED COLOR SIGNAL GENERATION MEANS FOR USE WITH DISPLAY, **filed** Sept. 27, 1982, D.C., C.D. Calif. (Los Angeles), Doc. 82 5015, *Apple Computer, Inc.* v. *Formula International, Inc.*

4,139,166, Menzel, Inc., SURFACE WIND BATCHER, **filed** Oct. 12, 1982, D.C.S.C. (Columbia), Doc. 82-2575-3, *Menzel, Inc.* v. *Bond Textile Machinery, Inc., et al.*

4,139,763, James P. McMullan, BLANKET HEATER WITH TEMPERATURE CONTROL MEANS, **filed** May 12, 1981, D.C., N.D. Calif. (San Francisco), Doc. 81 1871 WTS, *James P. McMullan* v. *Thermal Technology.* Stipulation and Order to dismiss with prejudice filed Oct. 14, 1982.

4,144,461, Victoreen, Inc., METHOD AND APPARATUS FOR ASSAY AND STORAGE OF RADIOACTIVE SOLUTIONS, **filed** Nov. 29, 1982, D.C.N.J. (Newark), Doc. 82-3999, *Victoreen, Inc.* v. *Capintec, Inc.*

4,152,974, National Presto Industries, Inc., HOT AIR CORN POPPER, **filed** Oct. 6, 1981, D.C.N.J. (Newark), Doc. 81-3120, *National Presto Industries, Inc.* v. *Forda Mfg., Co., Ltd.* Order of dismissal of action filed Oct. 5, 1982.

4,154,473, American Sunroof Corp., VEHICLE ROOF STRUCTURE KIT, **filed** Aug. 8, 1979, D.C., E.D. Mich. (Detroit), Doc. 79-73213, *American Sunroof Corp.* v. *Cars & Concepts, Inc.* Plaintiff is the owner of Pat. No. 4,154,473 which is valid. Stipulation and Order dismissing claims and counterclaims with prejudice, and without costs, as to both parties filed July 8, 1980. **Same, filed** Oct. 13, 1982, D.C. Md. (Baltimore), Doc. HM-82-3028, *American Sunroof Corp.* v. *E & G Classics, Inc.*

4,160,125, Digital Products Corp., TELEPHONE POLLING APPARATUS; **4,201,896, same,** TELEPHONE POLLING APPARATUS USING A PLURALITY OF TIMERS TO DETECT THE LINE CONDITIONS, **filed** Sept. 29, 1982, D.C. Md. (Baltimore), Doc. H-82-2866, *Digital Products Corp.* v. *Microlog Corp.*

4,172,560, Vermillion Equipment & Supply Co., Inc., REPLACEABLE LINER FOR THE DISCHARGE ASSEMBLY OF A ROTARY GRINDING MILL OR THE LIKE, **filed** Feb. 19, 1982, D.C. Minn. (Duluth), Doc. 5-82-32, *Northern Mining Equipment Co., et al* v. *Vermillion Equipment & Supply Co., Inc.* Pat. No. 4,172,560 is hereby declared to be invalid and unenforceable per default judgment filed Nov. 18, 1982.

4,176,921, Carrera International Corp., EYEGLASSES HAVING REMOVABLE LENSES; **Reg. No. 855,063** (CARRERA), Carrera International Corp., **filed** Dec. 30, 1981, D.C., S.D. Fla. (Miami), Doc. 81-2903-CIV-JLK, *Carrera International Corp.* v. *Optical Industries Corp., doing business as Boulevard Optics.* **Same, filed** June 7, 1982, D.C., E.D.N.Y. (Brooklyn), Doc. 82-Civ-1595, *Carrera International Corp.* v. *Roosevelt Field Opticians, et al.*

4,177,758, Dale Young, REARING APPARATUS FOR FISH FRY, **filed** Dec. 8, 1982, D.C. Alaska (Anchorage), Doc. A82-497 CIV, *Chemical Proof Corp., Inc. and Dale Young* v. *State of Alaska.*

4,179,081, John C. Parry, APPARATUS FOR APPLICATION OF PLASTICS STRETCH FILMS; **4,248,392, same, filed** Nov. 5, 1982, D.C., C.D. Calif. (Los Angeles), Doc. 82 5739, *John C. Parry* v. *Stevenson Industries, Inc.*

4,179,163, Superior Industries International, Inc., SIMULATED WIRE SPOKE WHEEL ASSEMBLY, **filed** Aug. 18, 1982, D.C, C.D. Calif. (Los Angeles), Doc. 82 4207, *Superior Industries International, Inc.* v. *Roy Y. Hamada, et al.*

4,181,347, Synergetics, Inc., MOBILE COMPUTERIZED TOMOGRAPHY UNIT, **filed** June 10, 1981, D.C., S.D. Fla. (Miami), Doc. 81-6315-CIV-SMA, *Synergetics, Inc.* v. *Universal Medical Scanners, Inc.* Consent Decree filed July 28, 1982.

4,186,982, AMP, Inc., CONTACT WITH SPLIT PORTION FOR ENGAGEMENT WITH SUBSTRATE, **filed** Nov. 15, 1982, D.C. Conn. (Bridgeport), Doc. B-82-669, *AMP, Inc.* v. *Burndy Corp.*

4,187,183. (See 3,817,860.)

4,187,390, W. L. Gore & Associates, Inc., POROUS PRODUCTS AND PROCESS THEREFOR, **filed** Feb. 7, 1980, D.C., N.D. Ohio (Cleveland), Doc. 80-174, *W. L. Gore & Associates, Inc.* v. *Garlock, Inc.* Memorandum of Opinion holding Pat. No. 4,187,390 invalid under 35 U.S.C. §§102, 103 and 112 and judgment is entered for defendant. Filed Nov. 19, 1982.

4,188,063, Etienne Dussart, HAMMOCK CHAIR WITH BACK SUPPORTING MEANS, **filed** May 8, 1980, D.C. Puerto Rico (San Juan), Doc. 80-0981, *Etienne Dussart* v. *Emeterio Hernandez, et al.* Judgment filed Sept. 8, 1982. **Same, filed** Sept. 29, 1980, D.C. Puerto Rico (San Juan), Doc. 80-2103, *Etienne Dussart* v. *Encarnacion Diaz.* Judgment filed Sept. 8, 1982.

4,188,876, Donald J. Graves, JUNK METAL COMPRESSOR, **filed** Oct. 1, 1980, D.C., N.D. Ind. (Fort Wayne), Doc. F 80-0190, *Donald J. Graves, et al* v. *The Kemsco Group, Inc., et al.* Order stating that defendant's salvage compactor does not infringe on Plaintiff's Pat. No. 4,188,876 filed Aug. 24, 1982. Cause dismissed with prejudice on motion by parties filed Sept. 17, 1982.

4,190,529. (See 3,817,860.)

4,193,284, Nathan O. McCrary, CAME CUTTING AND MOLDING TOOL AND METHOD OF USING SAME, **filed** Oct. 29, 1982, D.C., S.D. Iowa (Des Moines), Doc. 82-614-E, *Nathan O. McCrary* v. *C. T. Corp. Systems.*

4,195,732, Great Northern Corp. & Presto Products, Inc., SUPPORTING AND SPACING MEMBER FOR WEB MATERIAL ROLLS, **filed** July 29, 1982, D.C., N.D. Ga. (Atlanta), Doc. C82-1582A, *Great Northern Corp. & Presto Products, Inc.* v. *Davis Core & Pad Co., Inc.*

4,200,182. (See 4,130,920.)

4,201,896. (See 4,160,125.)

4,202,864. (See 4,123,506.)

4,208,831, Shelcore, Inc., DRIVING SIMULATOR TOY, **filed** Oct. 13, 1982, D.C.N.J. (Newark), Doc. 82-3424, *Shelcore, Inc.* v. *CBS, Inc.* **Same, filed** Oct. 13, 1982, D.C., E.D. Pa. (Philadelphia), Doc. 82-4493, *Shelcore, Inc.* v. *Durham Industries, Inc.*

4,209,088. (See 4,130,920.)

4,211,442, John D. Hansen, LOCK STRIKE, filed Sept. 8, 1981, D.C., N.D. Calif. (San Francisco), Doc. C81-3548WHO, *John D. Hansen* v. *Schlage Lock Co.* Order of Dismissal filed Aug. 16, 1982.

4,213,927, John D. Alberti, METHOD OF MAKING PICTURE PHONOGRAPH RECORD, filed Sept. 27, 1982, D.C., C.D. Calif. (Los Angeles), Doc. 82 5011, *John D. Alberti* v. *Custom Record Mfg. Co., doing business as Cadet Records, Inc.*

4,217,254, Synthetic Surfaces, inc., HIGH GREEN STRENGTH CURABLE URETHANE ADHESIVE; **4,256,615, same,** ADHESIVE CONSISTING ESSENTIALLY OF A RICINOLEATE URETHANE POLYOL AND A CHLORINATED RUBBER; **4,340,682, same,** ADHESIVE CONSISTING ESSENTIALLY OF AN ISOCYANATE TERMINATED RICINOLEATE PREPOLYMER AND A CHLORINATED POLYVINYL CHLORIDE, filed Nov. 16, 1982, D.C.N.J. (Newark), Doc. 82-3850, *Synthetic Surfaces, Inc.* v. *Lord Corp.*

4,219,821, Regency Electronics, Inc., AUTOMATIC DIRECTION FINDING SYSTEM, filed Oct. 26, 1982, D.C., M.D. Fla. (Tampa), Doc. 82-1180 CIV T GC, *Regency Electronics, Inc.* v. *Si-Tex Marine Electronics, Inc.*

4,232,679, Pacesetter Systems, Inc., PROGRAMMABLE HUMAN TISSUE STIMULATOR, filed Sept. 13, 1982, D.C., S.D. Fla. (Miami), Doc. 82-1928-CIV-SMA, *Pacesetter Systems, Inc.* v. *Medtronic, Inc.*

4,233,909, Itel Corp., RAILWAY CAR ASSEMBLY COMPOSED OF A SERIES OF ARTICULATELY INTERCONNECTED CARS, filed Sept. 16, 1982, D.C., N.D. Ill. (Chicago), Doc. 82 C 5722, *Itel Corp.* v. *Thrall Car Mfg. Co.*

4,234,134, Helena Laboratories Corp., PAPER TENSIONING DEVICE, filed Jan. 8, 1982, D.C.N.J. (Camden), Doc. 82-47, *Medical Research and Product Development Corp.* v. *Helena Laboratories Corp.* Order of dismissal without prejudice filed Sept. 1, 1982.

4,235,458, Gerald Erickson, BOTTLE CARRIER, filed Nov. 23, 1982, D.C., N.D. Tex. (Dallas), Doc. CA3-82-1875-H, *Gerald Erickson, et al* v. *A. Quelch & Associates, Inc., et al.*

4,237,896, Senil Nominees Pty. Ltd. and Australian Merino Wool Harvesting Ltd., IMMOBILIZING ANIMALS, filed Aug. 13, 1982, D.C. Neb. (Omaha), Doc. CV82-0-386, *Senil Nominees Pty. Ltd. and Australian Merino Wool Harvesting Ltd.* v. *Ag-Tronic, Inc.*

4,242,305. (See 4,123,506.)

4,248,392. (See 4,179,081.)

4,256,615. (See 4,217,254.)

4,262,803, Union Carbide Corp., BAGS WICKETED ON A FLEXIBLE BINDING; **4,277,930, same,** filed Aug. 6, 1982, D.C., N.D. Ill. (Chicago), Doc. 82 C 4884, *Union Carbide Corp.* v. *American Can Co.*

4,266,687, U.S. Clinical Products, Inc., SEALING COVER AND METHOD FOR RESEALING AN INTRAVENOUS CONTAINER, filed Dec. 6, 1982, D.C. Colo. (Denver), Doc. 82-Z-2080, *U.S. Clinical Products, Inc.* v. *Baxa Corp.*

4,272,649, Williams Electronics, Inc., PROCESSOR CONTROLLED SOUND SYNTHESIZER, filed Aug. 25, 1982, D.C., N.D. Ill. (Chicago), Doc. 82 C 5264, *Williams Electronics, Inc.* v. *Orbit Alley, Inc.*

4,277,930. (See 4,262,803.)

4,278,972. (See 4,136,359.)

4,285,016, Microcomputer Systems Corp., DISC, TAPE AND HYBRID DISC-TAPE MEMORY APPARATUS AND DRIVE ASSEMBLY, filed Aug. 2, 1982, D.C., N.D. Calif. (San Francisco), Doc. C-82-4096-SW, *Microcomputer Systems Corp.* v. *Pragma Data Systems, Inc.*

4,288,134, Knaack Mfg. Co., STORAGE CABINET; **4,290,281, same,** LOCK SYSTEM; **D. 260,062, same,** STORAGE CABINET OR SIMILAR ARTICLE, filed Aug. 6, 1982, D.C., N.D. Ill. (Chicago), Doc. 82 C 4869, *Knaack Mfg. Co.* v. *Stormaster, Inc., et al.*

4,289,190, Dynaforce Corp., PLASTIC STRIP CLOSURES AND METHODS OF PROTECTING THE SAME, filed Nov. 16, 1982, D.C. Del. (Wilmington), Doc. 82-740, *Dynaforce Corp.* v. *Awling Rubber Corp.*

4,290,281. (See 4,288,134.)

4,291,524, Alloway Mfg., Inc., METHOD OF DEFOLIATING; **4,308,714, same,** THREE DRUM DEFOLIATOR, filed Aug. 27, 1982, D.C. N. Dak. (Fargo), Doc. A3-82-139, *Alloway Mfg., Inc.* v. *Wic, Inc., et al.*

4,296,498. (See 4,078,265.)

4,301,560, Richard Fraige, WATERBED MATTRESS, filed Oct. 6, 1982, D.C., C.D. Calif. (Los Angeles), Doc. 82 5194, *Richard Fraige* v. *Intex Corp., et al.*

4,306,562, Cook, Inc., TEAR APART CANNULA, filed Nov. 12, 1982, D.C., M.D. Fla. (Tampa), Doc. 82-1252 CIV T WC, *Cook, Inc.* v. *Hart Medical, Inc., et al.*

4,307,537, David E. Bergmann, AIRBORNE FLOATING LIFT-WEIGHT BALANCED TOY, filed June 2, 1982, D.C., N.D. Ind. (Fort Wayne), Doc. F82-193, *Aberg, Inc. and David E. Bergmann* v. *World-Wide Marketing, Inc., et al.* Defendants permanently enjoined against infringing Pat. No. 4,307,537. Filed Sept. 23, 1982. **Same,** filed May 27, 1982, D.C. Minn. (St. Paul), Doc. 3-82-635, *Aberg, Inc. and David E. Bergmann* v. *M-D Marketing, et al.* Plaintiff is the owner of Pat. No. 4,307,537. Defendants are permanently enjoined against infringing this patent during unexpired term. Filed Oct. 5, 1982. **Same,** filed May 26, 1982, D.C., N.D. Ohio (Cleveland), Doc. 82-1385, *Aberg, Inc. and David E. Bergmann,* v. *World-Wide Marketing, Inc., et al.* Plaintiff is the owner of Pat. No. 4,307,537. Defendants are permanently enjoined against further infringing plaintiff's patent. Filed Oct. 12, 1982.

4,308,714. (See 4,291,524.)

4,308,901, Ag-Bag Corp., AGRICULTURAL BAG LOADING APPARATUS BEAKING MECHANISM; **4,310,036, same,** TUNNEL CLEAN OUT MECHANISM FOR AN AGRICULTURAL BAG LOADING APPARATUS; **4,337,805, same,** AGRICULTURAL BAG LOADING APPARATUS, filed Sept. 10, 1982, D.C., E.D. Pa. (Philadelphia), Doc. 82-3962, *Ag-Bag Corp.* v. *American Ag-Bag, Inc., et al.*

4,310,036. (See 4,308,901.)

4,310,044, M. Allan Schenker, ACCESS SHIELD FOR UNCOVERED REFRIGERATED UNITS, filed Sept. 9, 1982, D.C., C.D. Calif. (Los Angeles), Doc. 82 4606, *M. Allan Schenker* v. *Simplex Strip Doors, Inc.*

4,316,371, Fichet-Bauche, HIGH SAFETY BOLT CONTROL DEVICES, filed Oct. 26, 1982, D.C., W.D. Va. (Roanoke), Doc. 82-0789, *Medeco Security Locks, Inc.* v. *Fichet-Bauche.*

4,317,017. (See 3,701,872.)

4,318,577, Bunsmaster Bakeries of America, Inc., BULK FOOD DISPLAY BIN; **D. 265,361, same,** DISPLAY BIN, filed Sept. 9, 1982, D.C., W.D.N.Y. (Buffalo), Doc. 82-Civ-808E, *Bunsmaster Bakeries of America, Inc., et al* v. *C. P. Baking & Food Services, Inc., doing business as Mister Buns Bakery, et al.*

4,318,928. (See 3,968,256.)

4,321,038, Van R. Dental Products, Inc., BRAIDED GINGIVAL RETRACTION CORD, **filed** Aug. 12, 1982, D.C., C.D. Calif. (Los Angeles), Doc. 82 4080, *Van R. Dental Products, Inc.* v. *Belport Co., Inc.*

4,321,716, Fred J. Shrock, CONVERTIBLE SEAT-BED, **filed** Sept. 3, 1982, D.C., N.D. Ind. (South Bend), Doc. S82-0426, *Fred J. Shrock* v. *Better Products, Inc.*

4,337,805. (See 4,308,901.)

4,338,507. (See 4,063,059.)

4,340,682. (See 4,217,254.)

4,351,904. (See 3,968,256.)

Re. 28,507. (See 3,659,284.)

Re. 29,922, Sidney O. Sampson, TRACK SELECTION CONTROL MEANS FOR MAGNETIC SIGNAL RECORDING AND REPRODUCING SYSTEMS, **filed** May 7, 1982, D.C. Minn. (Minneapolis), Doc. 4-82-678, *Sidney O. Sampson* v. *Telex Communications, Inc.* **Same, filed** Sept. 10, 1982, D.C., S.D.N.Y., Doc. 82-Civ-6048 CES, *Sidney O. Sampson* v. *Harvey Electronics.*

Re. 30,969. (See 4,120,524.)

D. 238,538, Teknor Apex Co., FLOOR MAT, **filed** July 9, 1982, D.C., N.D. Ill. (Chicago), Doc. 82 C 4283, *Teknor Apex Co.* v. *Park Rubber Co.*

D. 245,833, Patricia K. Dystant, CLOCK-DIAL HAVING PICTURE FRAME HOURLY DESIGNATIONS, **filed** Nov. 12, 1982, D.C., M.D. Fla. (Tampa), Doc. 82-1251 CIV T H, *Names & Numbers, Inc.* v. *Patricia K. Dystant.*

D. 246,292. (See 4,024,734.)

D. 246,617, Chester C. Tomlin, Jr., HAT BAND, **filed** Aug. 2, 1982, D.C., N.D. Ga. (Atlanta), Doc. C82-1606 A, Chester C. Tomlin, Jr. f/u/b/o Quail Art, Inc. v. *Donald L. Collier, doing business as Collier's Atlanta.*

D. 254,186, The Colber Corp., RESISTOR HOUSING, **filed** Oct. 4, 1982, D.C., E.D. Tenn. (Chattanooga), Doc. Civ-1-82-447, *The Colber Corp.* v. *D. M. Steward Mdg. Co.*

D. 256,755, Charles W. Pelton, AUTOMOBILE CENTER CONSOLE CUSHION, **filed** Nov. 5, 1982, D.C., E.D. Mich. (Detroit), Doc. 82-74185, *Charles W. Pelton* v. *John's Corvette Care, Inc.*

D. 259,490, James J. Feuling, FAN HOUSING FOR AN AIR COOLED ENGINE; **D. 259,491, same; D. 261,654, same,** MOUNTING STAND FOR ATTACHING AN ACCESSORY TO AN ENGINE, **filed** Sept. 9, 1982, D.C., S.D. Calif. (San Diego), Doc. 82-1163-N-M, *James J. Feuling* v. *William E. Wood, doing business as Aluminum Accessories, et al.*

D. 259,491. (See D. 259,490.)

D. 260,062. (See 4,288,134.)

D. 260,432, Gabor Kadar, A COMBINED STAND AND CONTAINER FOR STORING LIQUIDS, **filed** Oct. 12, 1982, D.C., C.D. Calif. (Los Angeles), Doc. 82 5291, *Neo-Art, Inc. and Gabor Kadar* v. *Hawkeye Distilled Products Co., et al.*

D. 261,096, Petersen Mfg. Co., Inc., HAND TOOL, **filed** Nov. 2, 1982, D.C., C.D. Calif. (Los Angeles), Doc. 82 5667, *Petersen Mfg. Co., Inc.* v. *Central Purchasing, Inc., doing business as Harbor Freight Salvage Co., et al.*

D. 261,547, W. Rod Parke, AN AIR REGULATING NOZZLE, **filed** Aug. 2, 1982, D.C., N.D. Ill. (Rockford), Doc. 82 C 20134, *W. Rod Parke* v. *Milton Industries, Inc.*

D. 261,654. (See D. 259,490.)

D. 265,361. (See 4,318,577.)

D. 265,517, SL Container Corp., STORAGE CART, **filed** Aug. 11, 1982, D.C., C.D. Calif. (Los Angeles), Doc. 82 4060, *SL Container Corp.* v. *Beverly Hills Motoring Accessories.*

DEPARTMENT OF COMMERCE

Patent and Trademark Office

37 CFR Part 2

[Docket No. 30120–11]

Trademark Oppositions; Petitions To Cancel and Affidavits or Declarations Under Section 8 of the Trademark Act

AGENCY: Patent and Trademark Office, Commerce.

ACTION: Finai rule.

SUMMARY: The Patent and Trademark Office is amending the rules of practice in trademark cases to eliminate the requirement for verification of oppositions and petitions to cancel; to require that additional requests for extension of time to oppose be filed prior to the expiration of an extension; to require that affidavits or declarations filed under Section 8 of the Trademark Act show use of the mark in commerce; and to clarify and revise certain other procedures for oppositions and petitions to cancel. The amendments are necessary to implement certain trademark provisions of Pub. L. 97–247, enacted Aug. 27, 1982, which provisions are effective six months after the date of enactment, and to revise and codify existing practices so as to assist the orderly and prompt resolution of the issues.

EFFECTIVE DATE: Feb. 27, 1983.

FOR FURTHER INFORMATION CONTACT: As to the rules relating to oppositions and petitions to cancel, Ms. Janet Rice by telephone at (703) 557–3551 or by mail addressed to the Commissioner of Patents and Trademarks. Attention: Ms. Janet Rice, Crystal Sq. 5, Suite 1008, Washington, D.C. 20231. As to the rules relating to affidavits or declarations under Section 8, contact Ms. Paula Hairston by telephone at (703) 557–3882 or by mail addressed to the Commissioner of Patents and Trademarks, Attention: Ms. Paula Hairston, Room CP2–3C–06, Washington, D.C. 20231.

SUPPLEMENTARY INFORMATION: Amendments to rules 2.101, 2.102, 1.103, 2.111, and 2.112, among others, were proposed in a rulemaking notice published in the **Federal Register** on June 29, 1982, at 47 FR 28324, the Patent and Trademark Office Official Gazette of July 27, 1982, at 1020 O.G. 25, and Vol. 24 of BNA's Patent, Trademark & Copyright Journal (July 1, 1982) at p. 236. The purpose of these proposed amendments was to revise and codify existing practices. One of the proposed amendments (not adopted herein) was to interchange rules 2.101 and 2.102. Interested parties were requested to submit written comments on or before Oct. 4, 1982. An oral hearing was held on the same date. Written comments relating to proposed rules 2.101, 2.102, 2.103, 2.111, and 2.112 were submitted by four organizations and one individual. Three persons testified at the oral hearing.

Two of the individuals testified in behalf of organizations which also submitted written comments. Each of the two testified that the organization which he represented approved of the proposed amendments except as indicated in the organization's written comments. The third individual testified concerning the history and purpose of the proposed amendments and expressed his approval of them.

However, further changes to several of these proposed rules, as well as amendments to other trademark rules, were required in order to implement certain trademark provisions of intervening Pub. L. 97–247 enacted Aug. 27, 1982. The text of the law is published in the Patent and Trademark Office Official Gazette of Oct. 26, 1982, at 1023 O.G. 31.

Provisions of Pub. L. 97–247 relating to trademark fees were implemented by trademark fee rule changes which were published in the **Federal Register** on July 30, 1982 at 47 FR 33086 and which took effect on Oct. 1, 1982. That final rule document was based on the public law in effect at that time, Pub. L. 96–517, and on H.R. 6260, which was then pending but is now Pub. L. 97–247. As a result of the fee rule changes, which were subsequently confirmed in a document published in the **Federal Register** on Sept. 17, 1982 at 47 FR 41272, further changes to rule 2.101 (identified in the June 29, 1982 notice as 2.102) were required.

Additional changes to rules 2.101 (identified in the June 29, 1982 notice as 2.102), 2.103 and 2.111, as well as changes to rules 2.161 and 2.162, were required in order to implement the provisions of Sections 8 and 9 of Public Law 97–247. Section 8 of the new law amends Section 8 of the Trademark Act of 1946 (15 U.S.C. 1058) to require that an affidavit or declaration filed under Section 8 show use of the mark in commerce. Section 9(a) amends Section 13 of the Trademark Act (15 U.S.C. 1063) to eliminate the requirement for verification of oppositions (thus permitting a party's attorney to sign an opposition before the Trademark Trial and Appeal Board), and to require that additional requests for extension of time to oppose be filed prior to the expiration of the extension. Section 9(b) amends Section 14 of the Trademark Act (15 U.S.C. 1064) to eliminate the requirement for verification of petitions to cancel (thus permitting a party's attorney to sign petitions to cancel before the Trademark Trial and Appeal Board). The provisions of Sections 8 and 9 of the new law which are implemented by the rules amended in the present notice are effective Feb. 27, 1983.

The proposed changes to rules 2.101 (identified in the June 29, 1982 notice as 2.102), 2.103, 2.111, 2.161, and 2.162 required as a result of the enactment of Pub. L. 97–247 were published in the **Federal Register** on Nov. 24, 1982 at 47 FR 53054. In that notice, as in the June 29, 1982; notice, rules 2.101 and 2.102 were interchanged, and it was indicated in the notice that although rules 2.102 (identified in the notice as 2.101) and 2.112, as proposed in the June 29, 1982, notice, already included the necessary changes called for by Pub. L. 97–247 and thus were not being republished, further comments on the two proposed rules would be entertained. Interested parties were requested to submit written comments on or before Jan. 7, 1983. Comments were received from one organization.

Other provisions of Pub. L. 97–247 relevant to trademark cases either require no changes in Part 2 of Title 37 CFR or require changes in Part 1 which were proposed in a separate notice.

Sections 10, 11, and 14(c) of the new law amend the Trademark Act but require no changes in the trademark rules of practice. Section 10 amends Section 15 of the Trademark Act (15 U.S.C. 1065) relating to incontestability of registered marks. Under the amended section, a registered mark does not acquire incontestability if its use infringes a valid right acquired under the law of any state or territory by use of a mark or trade name continuing from a date prior to the date of registration. Before the section was amended, the date was the date of publication. Section 11 amends Section 16 of the Act (15 U.S.C. 1066) to correspond to the current practice relating to interferences. The amended section states that an interference will be declared only upon petition to the Commissioner showing extraordinary circumstances. Section 14(c) amends Section 11 of the Act (15 U.S.C. 1061) relating to acknowledgements and verifications. An official authorized to administer oaths in a foreign country may prove such authority by apostille if the foreign country accords like effect to apostilles of designated officials in the United States.

Section 12 of the new law affects practice in both patent and trademark cases. Amendments to the rules in Part 1 which apply to both patent and trademark cases were proposed in a separate notice published in the **Federal Register** on Oct. 27, 1982 at 47 FR 47744.

In summary, this notice of final rulemaking is based upon the notices of proposed rulemaking published in the **Federal Register** on June 29, 1982, at 47 FR 28324 and on Nov. 24, 1982 at 47 FR 53054.

Discussion of Specific Sections Changed

The rules which are being amended are discussed below. (The designation § is used in The Code of Federal Regulations to denominate a rule; lettered subdivisions ("(a)", "(b)", etc.) are subsections of rules; numbered subdivisions ("(1)", "(2)", etc.) are paragraphs within sections or subsections.)

It was proposed in the notice of June 29, 1982, that former §§2.101 and 2.102 be interchanged. That proposal has not been adopted in the amended rules. Further §2.101, as amended, eliminates the requirement for verification of oppositions.

Section 2.101(a), as amended, states when an opposition proceeding is commenced, which is important for the application of §2.135.

Section 2.101(b), as amended, indicates that an opposition should be addressed to the Trademark Trial and Appeal Board, which helps to route mail within the PTO.

Section 2.101(c), as amended, requires that an opposition be filed within thirty days after publication of the application or prior to the expiration of a granted extension of time for filing an opposition.

Section 2.101(d)(1) requires the payment of the statutory fee for an opposition, and provides for the late payment of opposition fee or fees, when a notice of opposition is not accompanied by at least one full fee to oppose one class by one person, if the required fee(s) is submitted to the Patent and Trademark Office within the time limit set in the notification of the defect by the Office. This section incorporates the substance of, and replaces, §2.101(c) which was adopted effective Oct. 1, 1982, 47 FR 33086 at 33111.

Section 2.101(d) (2) and (3) provide, where the fees that are submitted are insufficient for the number of classes being opposed and/or for the number of persons joined as party opposer, an opportunity for submission of the required fees or specification of the class or classes opposed and/or of the party opposers, and provides for the allocation of the insufficient fees if no such specification is made.

Sections 2.102(a) and (b), as amended, repeat, with revisions to clarify the provisions, former §2.102(a).

Section 2.102(c) requires that a notice of opposition be filed within thirty days after publication of the application or prior to expiration of a granted extension of time for filing a notice opposition, and provides that extensions of time to file an opposition aggregating more than 120 days will not be granted except upon (1) the written consent of applicant, or (2) a written request by the potential opposer which states that applicant has consented to the request and which includes proof of service upon applicant, or (3) a showing of extraordinary circumstances.

Section 2.102(d) provides that a request to extend the time for filing a notice of opposition should be submitted in triplicate. This section codifies an existing practice which expedites notification of the Board's action on a request for an extension of time.

Section 2.103 is removed. Since §2.101, as amended, eliminates the requirement for verification of an opposition and allows the attorney to sign an opposition without need for subsequent confirmation, §2.103 is unnecessary.

Sections 2.111 and 2.112, as amended, eliminate the requirement for verification of petitions for cancellation. It was proposed in the notice of June 29, 1982 that the requirement for verification of a petition for cancellation be deleted from §2.112 and be placed in §2.111. The requirement is not included in either section, as amended.

Section 2.111(a) states when a cancellation proceeding is commenced, which is important for the application of §2.134.

Section 2.111(b) incorporates most of the provisions of former §2.111 and also indicates that a petition for can-

cellation should be addressed to the TTAB, which helps to route mail within the PTO.

Section 2.111(c) states the requirement for the payment of the fee(s) due upon filing a petition for cancellation; provides, where the fees that are submitted are insufficient for the number of classes sought to be cancelled and/or for the number of persons joined as party petitioners, an opportunity for submission of the required fees (provided that the five-year period, if applicable, has not expired) or specification of the class or classes sought to be cancelled and/or of the party petitioners; provides for the allocation of the insufficient fees if no such specification is made; and states that the filing date of a petition for cancellation is the date of receipt in the Patent and Trademark Office of the petition with the required fee, and that if the amount of the fee filed with the petition is sufficient for at least one named party petitioner and one class of goods or services but is less than the required amount because multiple party petitioners and/or multiple classes in the registration for which cancellation is sought are involved, and the required additional amount of the fee is filed within the time limit set in the notification of the defect by the Office, the filing date of the petition with respect to the additional party petitioners and/or classes is the date of receipt in the Patent and Trademark Office of the additional fees.

Section 2.112(a) incorporates that part of former §2.112 which described the contents of a petition for cancellation, except that the requirement for verification has been removed.

Section 2.112(b) states the conditions for filing a consolidated petition for cancellation of different registrations owned by the same party.

Section 2.161, as amended, requires that an affidavit or declaration filed under Section 8 of the Trademark Act of 1946 show that the mark is in use in commerce.

Sections 2.162(e), (f) and (g), as amended, require that the affidavit or declaration filed under Section 8 of the Trademark Act of 1946 state that the mark is in use in commerce, and specify the nature of such commerce. The latter requirement is consistent with §2.33(viii) of the trademark rule which requires that the application for trademark registration specify the nature of the commerce in which the mark is used.

Response to Comments on the Rules

All of the comments received in response to the notices of proposed rulemaking published in the **Federal Register** on June 29, 1982, and Nov. 24, 1982, have been given careful consideration, and a number of the suggested modifications have been adopted. The comments and responses appear below.

Comment: One organization opposed the proposal to reverse the order of §§2.101 and 2.102, asserting that a change in the location of §2.101 would be likely to cause confusion, and that the more logical order is to first explain the substance of filing an opposition and then explain how to obtain an extension of time in which to act.

Response: To minimize confusion in view of the numerous recent rule changes and proposed rule changes, the proposal to reverse the order of §§2.101 and 2.102 has been withdrawn.

Comment: One organization noted that in §§2.101 and 2.102, as proposed, the term "opposition", when used to refer to the complaint in an opposition proceeding, has been changed to "notice of opposition". The organization expressed its belief that there is no reason for reverting to the phrase "notice of opposition" except tradition, and that that phrase is confusingly similar to the phrase "notification of opposition".

Response: The proposal to change "opposition" to "notice of opposition" in certain instances has not been adopted.

Comment: Two organizations suggested that §2.101(d) (identified as §2.102(e) and as 2.102(d) in the notices of proposed rulemaking of June 29, 1982, and Nov. 24, 1982, respectively), which deals with insufficient opposition fees and provides for the allocation of the fees submitted, be revised to give opposer(s) an opportunity to select the opposer(s) and/or classes to which the submitted fees apply. One of these organizations suggested that the opposer also be given an opportunity to submit the proper fee(s). Similar comments were made with respect to §2.111(c) (identified in the June 29, 1982 notice as §2.111(d)), which deals with insufficient cancellation fees.

Response: Where the fees submitted are insufficient for each named party opposer or petitioner for each class sought to be opposed or cancelled, it is in fact the practice of the Board to give the opposer(s) or petitioner(s) an opportunity to either submit the proper fees or to select the opposer(s) or petitioner(s) and/or classes to which the submitted fees apply. Accordingly, the sections have been changed to reflect this practice. See also, with respect to insufficient cancellation fees, §2.85(e).

Comment: One member of one of the organizations suggested that the subsections identified as §2.102 (e) and (f) in the notice of proposed rulemaking of June 29, 1982, and as §2.102 (d) and (e) in the notice of proposed rulemaking of Nov. 24, 1982, be consolidated into a single subsection so that all of the provisions concerning insufficient opposition fees will appear in the same subsection. Another organization suggested that these and certain other portions of the rules dealing with fees be moved to §2.6 or a new §2.7.

Response: The suggestion concerning consolidation has been adopted, and the two subsections in question have been consolidated into the single subsection now identified as §2.101(d). Inasmuch as it is believed that the most logical and effective location for these provisions is §2.101, the suggestion that they be moved to §2.6 or a new §2.7 has not been adopted.

Comment: One individual suggested that §2.101(a) (identified as §2.102(a) in the notices of proposed rulemaking) and §2.111(a) be modified by inserting the word "properly" before the word "executed" in order to make it clear that an opposition or cancellation proceeding is not commenced until a properly verified complaint has been filed.

Response: In view of the elimination of the requirement for verification of oppositions and petitions for cancellation, this suggestion is moot.

Comment: One organization suggested, with respect to the phrase "or other person authorized to represent the potential opposer" which appears in §2.102(a) (identified as §2.101(a) in the June 29, 1982 notice of proposed rulemaking), that the type of authorization intended here be explained by inserting a cross reference to §2.12 (b) and (c) and §2.17(b), the sections entitled "Persons who may practice before the Patent and Trademark Office in trademark cases" and "Recognition for representation", respectively.

Response: The subsection has been modified as suggested.

Comment: One organization stated, with respect to §2.102(b) (identified in the June 29, 1982 notice of proposed rulemaking as §2.101(b)), that it agreed with "the PTO's proposed amendment in paragraph (b) regarding 'privity'," but believed that "the intent should be mentioned in the legislative history of the rules."

Response: The substance of §2.102(b), as amended, is identical to the latter portion of former §2.102(a). That is, the amendment is not substantive in nature but rather involves a slight improvement in the wording of the subsection. The provision concerning privity was added by an earlier amendment effective Feb. 1, 1976. The legislative history of that rule change may be found in the notice of proposed rulemaking published in the **Federal Register** on Feb. 11, 1975 at 40 FR 6363 and in the notice of final rulemaking published in the **Federal Register** at 41 FR 756.

Comment: One organization suggested that the phrase "under this section" be deleted from the subsection identified as §2.101(c) in the June 29, 1982 notice of pro-

posed rulemaking (§2.102(c), as amended) so that extensions can be granted without requiring a showing of good cause following an extension which is not made under this section, as, for example, after a blanket extension published in the Official Gazette.

Response: The suggestion has been adopted.

Comment: Two organizations and some of the members of the "cognizant committee" of a third organization commented, with respect to the subsection identified in the June 29, 1982 notice as §2.101(c) (§2.102(c), as amended), that the requirement that a potential opposer seeking an extension of time beyond 120 days based upon the consent of applicant must furnish applicant's consent in writing is unduly harsh and that the potential opposer should be permitted to rely upon applicant's oral consent.

Response: Rule 2.102(c), as amended, permits the potential opposer to rely upon applicant's oral consent provided that the request to extend is accompanied by proof of service upon applicant or its authorized representative. Although proof of service of papers filed in connection with an inter partes proceeding before the Board upon the other parties to the proceeding is required after the proceeding commences, it is not normally required prior to that time. However, where a request for extension of time to oppose beyond 120 days is based upon potential opposer's assertion that applicant has given its oral consent thereto, the requirement for proof of service is necessary in order to provide applicant written confirmation of its oral consent.

Comment: Another portion of the "cognizant committee" of the organization referred to in the comment above suggested, with respect to the same subsection, that either the language regarding written stipulation be deleted or that the word "or" before the phrase "upon a showing of extraordinary circumstances" be changed to "and", thereby making a showing of extraordinary circumstances an essential requirement for any extension of time to oppose beyond 120 days.

Response: It is advantageous both to the Office and to the parties to a potential opposition if the conflict between the parties can be settled without resort to an opposition proceeding. It is believed that the changes suggested by this portion of the committee are unduly restrictive and would cause oppositions to be filed in cases where they might otherwise be avoided. Accordingly, the proposed changes have not been made. It should be noted in this regard that even when a request for extension of time beyond 120 days is based upon the written or oral consent of the applicant, good cause must still be shown for the requested extension. Thus the potential for abuse of the extension of time process which would exist if there were no requirement for a showing of good cause is avoided in §2.102(c) as amended.

Comment: One organization questioned the provisions in §2.111 for the payment of late fees in connection with a petition for cancellation as being possibly inconsistent with §14 of the Trademark Act of 1946, which states that the "petition * * * may, upon payment of the prescribed fee, be filed * * *"; noted that there is the possibility that the five-year period of §14 would pass between the filing of the petition and the payment of the fee as to one or more classes; and suggested that a petition to cancel should not be effective as to any class or person until the fee for that class is paid and the filing is complete.

Response: While it has been held, because of the power granted to the Commissioner by §13 of the Trademark Act of 1946 to extend the time for filing a notice of opposition and to fix a time within which an unverified opposition may be verified, that the payment of the required fee is not jurisdictional in the case of an opposition (See: Marzall v. Libby, McNeill & Libby, 89 USPQ 10 (D.C. Cir. 1951), and Colgate-Palmolive Co. v. Brenner, 148 USPQ 535 (S.D.N.Y. 1965)), the Court of Customs and Patent Appeals has held, in The Williamson-Dickie Manufacturing Co. v. Mann Overall Co., Inc., 149 USPQ 518 (CCPA 1966), that the payment of the required fee for a petition for cancellation is a jurisdictional requirement without which a petition has not been filed in compliance with §14 of the statute. Cf. §9 of the Trademark Act of 1946 (which, like §14, contains no provision granting the Commissioner the power to extend the time for filing), §2.183(b) of the Trademark Rules of Practice, and In re Michaels Stern & Co., Inc., 199 USPQ 382 (Comr. 1978). Further, when multiple classes are combined in a single application or registration, the combined application or registration is regarded as though it were a group of individual applications which have been physically assembled within a single file wrapper bearing a single serial or registration number, and each of these individual applications or registrations must stand or fall on its own merits in pre-registration and post-registration ex parte and inter partes proceedings, so that if an opposition or petition for cancellation is filed with respect to more than one of the classes in the combined application or registration, there are effectively multiple separate proceedings, each of which must be determined on its own facts and merits. See, for example: Federated Foods, Inc. v. Fort Howard Paper Co., 192 USPQ 24 (CCPA 1974), and In re Bombardier Limited, 204 USPQ 943 (Comr. 1979). Similarly, when multiple persons are named in a complaint as party opposers or petitioners, each must show that it would be damaged by the issuance or continued existence of the registration in question, so that if two different persons, for example, are joined as party petitioners, there are effectively two different cancellation proceedings, each of which must be determined on its own merits. It follows from the foregoing that when a petition for cancellation involves multiple classes and/or party petitioners, the required fee is jurisdictional with respect to each class and/or party petitioner, that is, that the petition for cancellation is not effective as to any class or person until the fee for that class or person has been received by the Office; and that if the five-year period of §14 of the Trademark Act of 1946 expires between the filing of the petition and the payment of the fee as to one or more classes or party petitioners, the petition as those classes or party petitioners can be entertained by the Trademark Trial and Appeal Board only to the extent that the petition is based upon the provisions of §14 (c), (d) or (e) or §24 of the statute or seeks cancellation of a registration issued under the Act of 1920. Accordingly, §2.111(a) has been revised to state that a cancellation proceeding is commenced by the timely filing of a petition for cancellation, together with the required fee, in the Patent and Trademark Office; the last sentence of subsection (b) has been revised to indicate that in those cases where the five-year limitation is applicable, both the petition and the required fee must be filed within the five-year period; in subdivisions (1) and (2) of subsection (c) (identified in the notice of proposed rulemaking of June 29, 1982, as subsection (d)), the provision of an opportunity to submit additional fees is limited, if the five-year period is applicable, to those cases in which the period has not expired; and a new subdivision (3) has been added to subsection (c) stating that the filing date of a petition for cancellation is the date of receipt in the Patent and Trademark Office of the petition together with the required fee, and that if the amount of the fee filed with the petition is sufficient for at least one named party petitioner and one class of goods or services but is less than the required amount because multiple party petitioners and/or multiple classes in the registration for which cancellation is sought are involved, and the required additional amount of the fee is filed within the time limit set in the notification of the defect by the Office, the filing date of the petition with respect to the additional party petitioners and/or classes is the date of receipt in the Patent and Trademark Office of the additional fees.

Comment: One organization suggested that a cross reference to §2.6 be added to §2.111(c)(1) (identified in the June 29, 1982, notice of proposed rulemaking as §2.111(d)(1)) along with the reference to §2.85(e).

Response: A cross reference to §2.6 has been added to

§2.111(c)(1), along with the reference to §2.85(e).

Comment: One organization objected to §2.162(e) to the extent that it requires that a statement of use in commerce "must be supported by evidence which shows that the mark is in use in commerce * * *," and recommended that the words "in commerce" be deleted from the quoted phrase. The organization indicated that while it did not object to the requirement of use in commerce, nor to the requirement of a showing that the mark is in use, it did object to a requirement of a showing that the mark is in use in commerce since such a showing could not be accomplished by a mere specimen but would also require invoices or the like.

Response: The subsection has been modified as suggested.

Environmental, Energy, and Other Considerations

The rule change will not have a significant impact on the quality of the human environment or the conservation of energy resources.

The rule change will not have a significant adverse economic impact on a substantial number of small entities (Regulatory Flexibility Act, Pub. L. 96-354). The rule change includes no additional or increased fees. Substantive rights to use valuable trademarks are not adversely affected. The rule change serves to implement the required trademark provisions of Pub. L. 97-247.

The rule change does not impose a record keeping or reporting burden under the Paperwork Reduction Act of 1980, 44 U.S.C. 3501 et seq. No additional information is required from the public. No additional records are required to be maintained by the Patent and Trademark Office because there are no additional fees or proceedings to monitor.

The Patent and Trademark Office has determined that this rule change is not a major rule under Executive Order 12291. The annual effect on the economy will be less than $100 million. There will be no major increase in costs or prices for consumers, individual industries, Federal, State, or local government agencies, or geographic regions. There will be no significant, adverse effects on competition, employment, investment, productivity, innovation, or on the ability of United States based enterprises to compete with foreign based enterprises in domestic or export markets.

List of Subjects in 37 CFR Part 2

Administrative practice and procedure, Courts, Lawyers, Trademarks.

Amendment of Regulations

After consideration of the comments received and pursuant to the authority contained in 15 U.S.C. 1123, Part 2 of Title 37 of the Code of Federal Regulations is amended as set forth below.

PART 2—RULES OF PRACTICE IN TRADEMARK CASES

1. Section 2.101 is revised to read as follows:

§2.101 Filing an opposition.

(a) An opposition proceeding is commenced by the filing of an opposition in the Patent and Trademark Office.

(b) Any person who believes that he would be damaged by the registration of a mark on the Principle Register may oppose the same by filing an opposition, which should be addressed to the Trademark Trial and Appeal Board.

(c) The opposition must be filed within thirty days after publication (§2.80) of the application being opposed or within an extension of time (§2.102) for filing an opposition.

(d)(1) The opposition must be accompanied by the required fee for each party joined as opposer for each class in the application for which registration is opposed (see §2.6(1)). If no fee, or a fee insufficient to pay for one person to oppose the registration of a mark in at least one class, is submitted within thirty days after publication of the mark to be opposed or within an extension of time for filing an opposition, the opposition will not be refused if the required fee(s) is submitted to the Patent and Trademark Office within the time limit set in the notification of this defect by the Office.

(2) If the fees submitted are sufficient to pay for one person to oppose registration in at least one class but are insufficient for an opposition against all of the classes in the application, and the particular class or classes against which the opposition is filed are not specified, the Office will issue a written notice allowing opposer until a set time in which to submit the required fee(s) or to specify the class or classes opposed. If the required fee(s) is not submitted, or the specification made, within the time set in the notice, the opposition will be presumed to be against the class or classes in ascending order, beginning with the lowest numbered class and including the number of classes in the application for which the fees submitted are sufficient to pay the fee due for each class.

(3) If persons are joined as party opposers, and the fees submitted are sufficient to pay for one person to oppose registration in at least one class but are insufficient for each named party opposer, the Office will issue a written notice allowing the named party opposers until a set time in which to submit the required fee(s) or to specify the opposer(s) to which the submitted fees apply. If the required fee(s) is not submitted, or the specification made, within the time set in the notice, the first named party will be presumed to be the party opposer and additional parties will be deemed to be party opposers to the extent that the fees submitted are sufficient to pay the fee due for each party opposer. If persons are joined as party opposers against the registration of a mark in more than one class, the fees submitted are insufficient, and no specification of opposers and classes is made within the time set in the written notice issued by the Office, the fees submitted will be applied first on behalf of the first-named opposer against as many of the classes in the application as the submitted fees are sufficient to pay, and any excess will be applied on behalf of the second-named party to the opposition against the classes in the application in ascending order.

2. Section 2.102 is revised to read as follows:

§2.102 Extension of time for filing an opposition.

(a) Any person who believes that he would be damaged by the registration of a mark on the Principal Register may file a written request to extend the time for filing an opposition. The written request may be signed by the potential opposer or by an attorney at law or other person authorized, in accordance with §2.12 (b) and (c) and §2.17(b), to represent the potential opposer.

(b) The written request to extend the time for filing an opposition must identify the potential opposer with reasonable certainty. Any opposition filed during an extension of time should be in the name of the person to whom the extension was granted, but an opposition may be accepted if the person in whose name the extension was requested was misidentified through mistake or if the opposition is filed in the name of a person in privity with the person who requested and was granted the extension of time.

(c) The written request to extend the time for filing an opposition must be filed in the Patent and Trademark Office before the expiration of thirty days from the date of publication or within any extension of time previously granted, should specify the period of extension desired, and should be addressed to the Trademark Trial and Appeal Board. A first extension of time for not more than thirty days will be granted upon request. Further extensions of time may be granted by the Board for good cause. In addition, extensions of time to file an opposition aggregating more than 120 days from the date of publication of the application will not be granted except upon (1) a written consent or stipulation signed by the applicant or its authorized representative, or (2) a written request by the potential opposer or its authorized representative stating that the applicant or its authorized representative has consented to the request, and including proof of service on the applicant or its authorized representative, or (3) a showing of extraordinary circumstances, it being considered that a potential op-

poser has an adequate alternative remedy by a petition for cancellation.

(d) Every request to extend the time for filing a notice of opposition should be submitted in triplicate (original plus two copies).

§2.103 [Removed]

3. Section 2.103 is removed.

4. Section 2.111 is revised to read as follows:

§2.111 Filing petition for cancellation.

(a) A cancellation proceeding is commenced by the timely filing of a petition for cancellation, together with the required fee, in the Patent and Trademark Office.

(b) Any person who believes that he is or will be damaged by a registration may file a petition, which should be addressed to the Trademark Trial and Appeal Board, to cancel the registration in its entirety or for each class in the registration specified in the petition. The petition may be filed at any time in the case of registrations on the Supplemental Register or under the Act of 1920, or registrations under the Act of 1881 or the Act of 1905, which have not been published under §12(c) of the Act of 1946, or on any ground specified in §14 (c) or (e) of the Act of 1946. In all other cases the petition and the required fee must be filed within five years from the date of registration of the mark under the Act of 1946 or from the date of publication under §12(c) of the Act of 1946.

(c)(1) The petition must be accompanied by the required fee for each class in the registration for which cancellation is sought (see §§2.6(1) and 2.85(e)). If the fees submitted are insufficient for a cancellation against all of the classes in the registration, and the particular class or classes against which the cancellation is filed are not specified, the Office will issue a written notice allowing petitioner until a set time in which to submit the required fee(s) (provided that the five-year period, if applicable, has not expired) or to specify the class or classes sought to be cancelled. If the required fee(s) is not submitted, or the specification made, within the time set in the notice, the cancellation will be presumed to be against the class or classes in ascending order, beginning with the lowest numbered class, and including the number of classes in the registration for which the fees submitted are sufficient to pay the fee due for each class.

(2) If persons are joined as party petitioners, each must submit a fee for each class for which cancellation is sought. If the fees submitted are insufficient for each named party petitioner, the Office will issue a written notice allowing the named party petitioners until a set time in which to submit the required fee(s) (provided that the five-year period, if applicable, has not expired) or to specify the petitioner(s) to which the submitted fees apply. If the required fee(s) is not submitted, or the specification made, within the time set in the notice, the first named party will be presumed to be the party petitioner and additional parties will be deemed to be party petitioners to the extent that the fees submitted are sufficient to pay the fee due for each party petitioner. If persons are joined as party petitioners against a registration sought to be cancelled in more than one class, the fees submitted are insufficient, and no specification of parties and classes is made within the time set in the written notice issued by the Office, the fees submitted will be applied first on behalf of the first-named petitioner against as many of the classes in the registration as the submitted fees are sufficient to pay, and any excess will be applied on behalf of the second-named party to the petition against the classes in the registration in ascending order.

(3) The filing date of the petition is the date of receipt in the Patent and Trademark Office of the petition together with the required fee. If the amount of the fee filed with the petition is sufficient to pay for at least one person to petition to cancel one class of goods or services but is less than the required amount because multiple party petitioners and/or multiple classes in the registration for which cancellation is sought are involved, and the required additional amount of the fee is filed within the time limit set in the notification of the defect by the Office, the filing date of the petition with respect to the additional party petitioners and/or classes is the date of receipt in the Patent and Trademark Office of the additional fees.

5. Section 2.112 is revised to read as follows:

§2.112 Contents of petition for cancellation.

(a) The petition to cancel must set forth a short and plain statement showing how the petitioner is or will be damaged by the registration, state the grounds for cancellation, and indicate the respondent party to whom notification shall be sent. A duplicate copy of the petition, including exhibits, shall be filed with the petition.

(b) Petitions to cancel different registrations owned by the same party may be joined in a consolidated petition when appropriate, but the required fee must be included for each party joined as petitioner for each class sought to be cancelled in each registration against which the petition to cancel is filed.

6. Section 2.161 is revised to read as follows:

§2.161 Cancellation for failure to file affidavit or declaration during sixth year.

Any registration under the provisions of the Act of 1946 and any registration published under the provisions of section 12(c) of the Act (§2.153) shall be cancelled as to any class in the registration at the end of six years following the date of registration or the date of such publication, unless within one year next preceding the expiration of such six years the registrant shall file in the Patent and Trademark Office an affidavit or declaration in accordance with §2.20 showing that said mark is in use in commerce as to such class or showing that its nonuse as to such class is due to special circumstances which excuse such nonuse and is not due to any intention to abandon the mark.

7. Section 2.162 is amended by revising paragraphs (e), (f) and (g) to read:

§2.162 Requirements for affidavit or declaration during sixth year.

* * * * *

(e) State that the registered mark is in use in commerce and specify the nature of such commerce (except under paragraph (f) of this section). The statement must be supported by evidence which shows that the mark is in use, and normally such evidence consists of a specimen or a facsimile specimen which is currently in use, or a statement of facts concerning use. The supporting evidence should be submitted with the affidavit or declaration, but if it is not or if the evidence submitted is found to be deficient, the evidence, or further evidence, may be submitted and considered even though filed after the sixth year has expired;

(f) If the registered mark is not in use in commerce, recite facts to show that nonuse is due to special circumstances which excuse such nonuse and is not due to any intention to abandon the mark. If the facts recited are found not to be sufficient, further evidence or explanation may be submitted and considered even though filed after the sixth year has expired; and

(g) Contain the statement of use in commerce or statement as to nonuse and appropriate evidence, as required in paragraphs (e) and (f) of this section, for each class to which the affidavit or delcaration pertains in this registration.

(Secs. 8 and 9, Pub. L. 97-247 (96 Stat. 320))

Jan. 19, 1983.

DONALD J. QUIGG,
Deputy Commissioner of Patents and Trademarks.

[FR Doc. 83-2350 Filed 1-27-83; 8:45 am]
BILLING CODE 3510-16-M

Status of PTO Services

The following is an update of the status of PTO services as of Jan. 31, 1983:

Service Item	FY 1983 Performance Goal (Calendar Days)	Actual	Comment
Filing Receipts:			
Patents	22	40	Reduced by 6 days in the past month.
Trademarks	30	119	Delays continue due to extremely large number of applications filed during September.
Patent Copies:			
Window Coupons	5	94% within 5 days	Problems encountered in the initial phase of implementing an automated control system are being overcome.
Mail Coupons*	29	97% within 29 days	
Letter Orders*	34	94% within 34 days	
Certified Copies:			
Trademark Registrations	30	11	
Applications-As-Filed	20	99% within 20 days	
File-Wrapper/Contents	N/A	99% within 15 days	
Walk-up Certification	1	99% within 1 day	
Trademark Search Library:			
Filing Drawings	21	118	Delays continue due to extremely large number of applications filed during September.
Filing Reg. Certificates	3	9	
Assignments			
Patents	25	61	Goals should be reached by mid-summer.
Trademark	25	71	
Patent Official Gazette			
In Bookstore	Issue Date	On schedule	
Mailed	Issue Date	Avg. 1 day late	
Patent Grants Mailed	Issue Date	1 day late	
Patent Copies Available	Issue Date	85%	95% available by day after Issue Date.
Trademark Official Gazette			
In Bookstore	Issue Date	On schedule	
Mailed	Issue Date	Avg. 1.5 days late	
Trademark Regs. Mailed	Issue Date	2 days late	

*Goal now includes mail processing and delivery time.

IMPROVEMENTS TO SERVICES

- *Public Service Center* — On Feb. 28, 1983, the Public Service Center will open as a new Patent and Trademark Office facility. The Center is being put into operation to improve the office services to the general public and the patent community.

  The Center will be located temporarily in Crystal Plaza, Building 3, Room 2C30 and will be permanently located in Building 3, Room 1D01 after this space is renovated. The permanent location will make the Center easily accessible from the Public Search Room.

  The Center is being established to process walk-in and written inquiries pertaining to specific customer problems in obtaining copies of U.S. patents and trademark registrations, certified and uncertified copies of official PTO documents, and problems in obtaining any PTO files. Other services are planned to be added in the future as needs arise.

  Basically, the Center will be responsible for determining why a specific service has not been supplied within a reasonable length of time and attempt to expedite delivery immediately. The Center is not, however, intended to be an initial ordering facility for any service provided.

  General procedures for obtaining service will be available from the Center on Feb. 28.

  Window Coupons for Patent and Trademark Copies — Window coupon pick-up has been changed to the following:

  8:30 a.m.
  10:15 a.m.
  12:30 p.m.
  3:00 p.m.
  5:00 p.m.*

*Coupons picked-up at this time will have a request date of the next work day.

THERESA A. BRELSFORD,
Assistant Commissioner for Administration.

Jan. 31, 1983.

PATENT NOTICES

Certificates of Correction for the Week of Feb. 22, 1983

Re. 30,636	4,340,241	4,352,449	4,357,553
Re. 30,923	4,340,382	4,352,549	4,357,894
3,898,134	4,340,473	4,352,620	4,358,121
4,067,779	4,341,908	4,352,643	4,358,680
4,192,672	4,342,430	4,353,018	4,358,926
4,215,738	4,342,694	4,353,147	4,358,975
4,227,470	4,342,918	4,353,198	4,359,283
4,237,389	4,343,118	4,353,294	4,359,338
4,249,001	4,344,946	4,353,398	4,359,553
4,254,871	4,346,641	4,353,498	4,359,759
4,282,062	4,347,424	4,353,934	4,360,096
4,288,588	4,347,471	4,354,064	4,360,215
4,297,303	4,347,498	4,354,231	4,360,700
4,310,412	4,347,579	4,354,244	4,360,967
4,314,393	4,347,586	4,354,254	4,360,997
4,317,844	4,347,765	4,354,259	4,361,985
4,320,133	4,348,210	4,354,618	4,362,035
4,321,387	4,348,375	4,354,944	4,362,304
4,322,426	4,348,664	4,355,406	4,362,583
4,324,877	4,348,746	4,355,495	4,362,697
4,325,016	4,348,803	4,355,694	4,363,020
4,329,367	4,349,434	4,355,739	4,363,117
4,329,678	4,349,763	4,355,797	4,363,204
4,330,387	4,349,887	4,355,810	4,363,321
4,331,394	4,349,908	4,355,869	4,363,945
4,334,234	4,350,445	4,356,034	4,364,222
4,334,618	4,350,504	4,356,086	4,364,654
4,336,756	4,350,616	4,356,314	4,364,716
4,336,791	4,350,687	4,356,447	4,365,187
4,336,926	4,351,032	4,356,481	4,365,641
4,337,459	4,351,133	4,356,905	4,366,444
4,338,292	4,351,443	4,357,190	4,366,565
4,338,770	4,351,943	4,357,344	4,366,854
4,338,820	4,352,362	4,357,382	

Disclaimers

3,256,092.—*Paul B. Means, Jr.*, and *Vincent J. Miceli*, Binghamton, N.Y. CORROSION INHIBITORS IN BLEACH SOLUTIONS. Patent dated June 14, 1966. Disclaimer filed Sept. 30, 1982, by the assignee, *Eastman Kodak Co.*

Hereby enters this disclaimer to all claims of said patent.

3,343,959.—*Edward Cerwonka*, Binghamton, N.Y. PHOTOPOLYMERIZABLE COATED LAYERS USING ORGANIC SALTS OF MANGANIC IONS AND METHOD OF PRODUCTION. Patent dated Sept. 26, 1967. Disclaimer filed Sept. 30, 1982, by the assignee, *Eastman Kodak Co.*

Hereby enters this disclaimer to all claims of said patent.

3,345,668.—*John L. Forrest*, Windsor, N.Y. ABRASIVE ARTICLE. Patent dated Oct. 10, 1967. Disclaimer filed Sept. 30, 1982, by the assignee, *Eastman Kodak Co.*

Hereby enters this disclaimer to all claims of said patent.

3,345,927.—*Zoltan Takats*, Vestal, N.Y. APPARATUS FOR RAPID DEVELOPMENT OF PHOTOGRAPHIC FILM. Patent dated Oct. 10, 1967. Disclaimer filed Sept. 30, 1982, by the assignee, *Eastman Kodak Co.*

Hereby enters this disclaimer to all claims of said patent.

3,367,777.—*Alex P. Altavilla*, Johnson City, N.Y. PREVENTION OF SILVER OCCLUSION IN COLOR PHOTOGRAPHY. Patent dated Feb. 6, 1968. Disclaimer filed Sept. 30, 1982, by the assignee, *Eastman Kodak Co.*

Hereby enters this disclaimer to all claims of said patent.

3,390,061.—*Steven Levinos*, Vestal, N.Y. PROTECTIVE LOCALIZED AREA RESIN COATINGS FOR ELECTROPLATING. Patent dated June 25, 1968. Disclaimer filed Sept. 30, 1982, by the assignee, *Eastman Kodak Co.*

Hereby enters this disclaimer to all claims of said patent.

3,440,047.—*Steven Levinos*, Vestal and *John Bergfjord*, Binghamton, N.Y. PHOTOPOLYMER OFFSET PRINTING PLATES OF THE ETCH TYPE. Patent dated Apr. 22, 1969. Disclaimer filed Sept. 30, 1982, by the assignee, *Eastman Kodak Co.*

Hereby enters this disclaimer to all claims of said patent.

3,493,371.—*Albert Lucien Poot*, Kontich, Belgium. RADIATION-SENSITIVE RECORDING MATERIAL. Patent dated Feb. 3, 1970. Disclaimer filed Sept. 30, 1982, by the assignee, *Eastman Kodak Co.*

Hereby enters this disclaimer to all claims of said patent.

3,556,789.—*Carl E. Johnson* and *Dewey M. Dumers*, Binghamton, N.Y. COLOR OSCILLOGRAPH PROCESSING. Patent dated Jan. 19, 1971. Disclaimer filed Sept. 30, 1982, by the assignee, *Eastman Kodak Co.*

Hereby enters this disclaimer to all claims of said patent.

3,583,969.—*Guenther H. Klinger*, Binghamton, N.Y., and *Peter A. Landskroener*, Bernardsville, N.J. COLOR FORMERS FOR INCORPORATION IN PHOTOGRAPHIC EMULSIONS COMPRISING REACTION PRODUCT OF AN AQUEOUS ALKALINE GELATIN SOLUTION AND ALPHA-NAPTHOLS, 1-ARYLPYRAZOLONES OR ACYLACETARYLIDES CONTAINING SULFO OR CARBOXY GROUPS. Patent dated June 8, 1971. Disclaimer filed Sept. 30, 1982, by the assignee, *Eastman Kodak Co.*

Hereby enters this disclaimer to all claims of said patent.

3,607,292.—*Edward J. Cerwonka*, Binghamton, N.Y. TRIACRYLYLDIETHYLENETRIAMINE, METHOD OF PRODUCING THE SAME, AND PHOTOPOLYMERIZATION PROCESS AND SYSTEM UTILIZING THE SAME. Patent dated Sept. 21, 1971. Disclaimer filed Sept. 30, 1982, by the assignee, *Eastman Kodak Co.*

Hereby enters this disclaimer to all claims of said patent.

3,794,269.—*James E. Hoover*, Binghamton, N.Y. FILM CARTRIDGE. Patent dated Feb. 26, 1974. Disclaimer filed Sept. 30, 1982, by the assignee, *Eastman Kodak Co.*

Hereby enters this disclaimer to all claims of said patent.

3,930,296.—*James E. Hoover,* Binghamton, N.Y. METHOD AND MACHINE FOR LOADING AND ASSEMBLING FILM CARTRIDGES. Patent dated Jan. 6, 1976. Disclaimer filed Sept. 30, 1982, by the assignee, *Eastman Kodak Co.*

Hereby enters this disclaimer to all claims of said patent.

4,149,888.—*Frank J. Loprest,* Binghamton, N.Y. TRANSPARENT PHOTOGRAPHIC MASKS. Patent dated Apr. 17, 1979. Disclaimer filed Sept. 30, 1982, by the assignee, *Eastman Kodak Co.*

Hereby enters this disclaimer to all claims of said patent.

4,175,969.—*E. Scudder Mackey,* Binghamton, N.Y. ANTISTATIC PHOTOGRAPHIC X-RAY FILM HAVING A UNIFORM PROTECTIVE SURFACE COATING OF SURFACTANT OLIGOMER OF TETRAFLUOROETHYLENE. Patent dated Nov. 27, 1979. Disclaimer filed Sept. 30, 1982, by the assignee, *Eastman Kodak Co.*

Hereby enters this disclaimer to all claims of said patent.

Reference Collections of U.S. Patents Available for Public Use in Patent Depository Libraries

The libraries listed herein, designated as patent depository libraries, receive current issues of U.S. Patents and maintain collections of earlier issued patents. The scope of these collections varies from library to library, ranging from patents of only recent months or years in some libraries to all or most of the patents issued since 1870, or earlier, in other libraries.

These patent collections are open to public use and each of the patent depository libraries, in addition, offers the publications of the patent classification system (e.g. The Manual of Classification, Index to the U.S. Patent Classification, Classification Definitions, etc.) and provides technical staff assistance in their use to aid the public in gaining effective access to information contained in patents. With one exception, as noted in the table following, the collections are organized in patent number sequence.

Depending upon the library, the patents may be available in microfilm, in bound volumes of paper copies, or in some combination of both. Facilities for making paper copies from either microfilm in reader-printers or from the bound volumes in paper-to-paper copies are generally provided for a fee.

Owing to variations in the scope of patent collections among the patent depository libraries and in their hours of service to the public, anyone contemplating use of the patents at a particular library is advised to contact that library, in advance, about its collection and hours, so as to avert possible inconvenience.

State	*Name of Library*	*Telephone Contact*
Alabama	Birmingham Public Library	(205) 254-2555
Arizona	Tempe: Science Library, Arizona State University	(602) 965-7607
California	Los Angeles Public Library	(213) 626-7555 Ext. 273
	Sacramento: California State Library	(916) 322-4572
	Sunnyvale: Patent Information Clearinghouse*	(408) 738-5580
Colorado	Denver Public Library	(303) 571-2122
Delaware	Newark: University of Delaware	(302) 738-2238
Georgia	Atlanta: Price Gilbert Memorial Library, Georgia Institute of Technology	(404) 894-4508
Illinois	Chicago Public Library	(312) 269-2865
Louisiana	Baton Rouge: Troy H. Middleton Library, Louisiana State University	(504) 388-2570
Massachusetts	Boston Public Library	(617) 536-5400 Ext. 265
Michigan	Detroit Public Library	(313) 833-1450
Minnesota	Minneapolis Public Library & Information Center	(612) 372-6552
Missouri	Kansas City: Linda Hall Library	(816) 363-4600
	St. Louis Public Library	(314) 241-2288 Ext. 214, Ext. 215
Nebraska	Lincoln: University of Nebraska-Lincoln, Engineering Library	(402) 472-3411
New Hampshire	Durham: University of New Hampshire Library	(603) 862-1777
New Jersey	Newark Public Library	(201) 733-7814
New York	Albany: New York State Library	(518) 474-5125
	Buffalo and Erie County Public Library	(716) 856-7525 Ext. 267
	New York Public Library (The Research Libraries)	(212) 930-0850
North Carolina	Raleigh: D. H. Hill Library, N.C. State University	(919) 737-3280
Ohio	Cincinnati & Hamilton County, Public Library of	(513) 369-6936
	Cleveland Public Library	(216) 623-2870
	Columbus: Ohio State University Libraries	(614) 422-6286
	Toledo/Lucas County Public Library	(419) 255-7055 Ext. 212
Oklahoma	Stillwater: Oklahoma State University Library	(405) 624-6546
Pennsylvania	Philadelphia: Franklin Institute Library	(215) 448-1321**
	Pittsburgh: Carnegie Library of Pittsburgh	(412) 622-3138
	University Park: Pattee Library, Pennsylvania State University	(814) 865-4861
Rhode Island	Providence Public Library	(401) 521-7722 Ext. 226
South Carolina	Charleston: Medical University of South Carolina	(803) 792-2372
Tennessee	Memphis & Shelby County Public Library and Information Center	(901) 528-2957
Texas	Dallas Public Library	(214) 748-9071
	Houston: The Fondren Library, Rice University	(713) 527-8101 Ext. 2587
Washington	Seattle: Engineering Library, University of Washington	(206) 543-0740
Wisconsin	Madison: Kurt F. Wendt Engineering Library, University of Wisconsin	(608) 262-6845
	Milwaukee Public Library	(414) 278-3043

All of the above-listed libraries, except the Cleveland Public Library, offer CASSIS (Classification And Search Support Information System), which provides direct, on-line access to Patent and Trademark Office data.

*Collection organized by subject matter.

**Call only between the hours of 10:00 a.m. and 5:00 p.m.

PATENT EXAMINING CORPS

RENE D. TEGTMEYER, Assistant Commissioner

WILLIAM FELDMAN, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF December 25, 1982

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—D. E. TALBERT, Director ..... Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metallurgical Apparatus; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	11-12-80
GENERAL ORGANIC CHEMISTRY, GROUP 120—C. E. VAN HORN, Director ..... Heterocyclic Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	8-06-81
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—J. O. THOMAS, JR., Director .... Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g., Coating; Molding; Ink; Prosthdontics; Adhesive and Abrading Compositions; Molding, Shaping, Treating Process, and Apparatus Therefor; Irradiation (Part); Bleaching; Dyeing; Leather, Fur and Textile Treating Compositions.	12-31-81
COATING, LAMINATING AND PHOTOGRAPHY, GROUP 160—S. N. ZAHARNA, Director ..... Coating: Processes, Apparatus and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; and Photography.	1-15-82
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—R. F. WHITE, Director ..... Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	10-30-81
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—S. W. ENGLE, Director Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Horology; Acoustics; Recorders; Weighing Scales.	2-13-81
SPECIAL LAWS ADMINISTRATION, GROUP 220—KENNETH L. CAGE, Director ..... Ordnance, Firearms and Ammunition; Lubrication; Illumination; Nuclear Reactors; Acoustics, Communications, Optics; Radar; Directional Radio; Torpedoes; Seismic Exploring; Cathode Ray Tube Circuitry; Cryptography; Laser Devices; Radioactive Materials; Powder Metallurgy, Rocket Fuels; Special, Fuel, Explosive and Thermic Compositions; Thermal and Photoelectric Batteries.	3-20-81
INFORMATION TRANSMISSION, STORAGE, AND RETRIEVAL, GROUP 230—EARL LEVY, Director ..... Communications; Multiplexing Techniques; Television; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	11-24-80
RECEPTACLES, CLEANING, WINDING, AND MEASURING, GROUP 240—G. M. FORLENZA, Director ..... Receptacles; Bearings; Joint Packing; Conduits; Switches; Presses; Plumbing Fixtures; Textile Spinning; Cleaning; Food Treating; Agitating; Centrifugal Separating; Geometrical Instruments; Sound Recording; Image Projectors; Web Feeding; Winding and Reeling; Cable Hoists; Measuring and Testing; Indicating; Fluent Material Handling; Shaft; Impellers; Rotary Fluid Motors.	1-09-81
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—S. S. MATTHEWS, Director ..... Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	11-26-79
DESIGN, GROUP 290—KENNETH L. CAGE, Director ..... Industrial Arts; Household, Personal and Fine Arts.	1-05-81
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—B. R. GRAY, Director ..... Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	2-26-81
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—M. M. NEWMAN, Director ... Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion-Bonding, Metal Founding; Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking; Tools; Cutlery; Jacks; Fishing, Etc.; Butchering; and Books and Printed Matter.	4-20-81
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—R. E. AEGERTER, Director ..... Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Plants; Harvesting; Earth Working and Excavating; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Information Dissemination.	2-13-80
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—D. J. STOCKING, Director ..... Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Couplings; Gearing; Fluid Handling and Control; Lubrication.	11-17-80
GENERAL CONSTRUCTIONS, TEXTILES, MINING AND GEARING, GROUP 350—A. L. SMITH, Director ..... Building Structures; Racks; Cabinets; Closures; Supports; Furniture; Fasteners; Locks; Pipe Couplings; Joints; Miscellaneous Hardware; Textiles; Sewing Machines; Apparel; Footwear; Earth Engineering; Earth Drilling; Mining; Wells; Roads; Bridges; Tool Driving; Gearing; Machine Elements; Clutches.	9-17-80

Expiration of patents: The patents within the range of numbers indicated below expire during December 1982, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents ..... Numbers 3,221,339 to 3,226,728, inclusive

Plant Patents ..... Numbers 2,577 to 2,584 inclusive

REISSUES

FEBRUARY 22, 1983

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

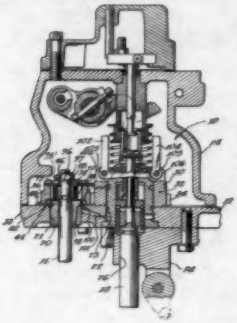
Re. 31,154
FLEXIBLE DRIVE

James T. Hammond, San Leandro, Calif., and John H. Parks, Peoria, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

Original No. 4,121,476, dated Oct. 24, 1978, Ser. No. 797,220, May 16, 1977. Application for reissue Oct. 15, 1979, Ser. No. 85,185

Int. Cl.³ F16H *57/00*; F16D *3/14*

U.S. Cl. 74—411 12 Claims



12. In a governor drive having a base, a pair of shafts extending through said base and being disposed parallel to each other, [each] *one* of said shafts having a *first* gear meshing with [each] *a second gear surrounding a portion of the* other *of said shafts, said* one of said shafts being [driven] *a drive shaft* and receiving rotational and vibrational forces from a prime mover, a pair of flyweights [carried] *operatively driven* by the *second* gear on said other shaft, cam [mean] *means* carried by said [driven] *drive* shaft for rotation therewith, elongate spring means seated in said *first* gear on the [driven] *drive* shaft and engaging with a portion of the [opposite sides of] cam means, whereby rotation of said [driven] *drive* shaft will urge said cam means against said spring means to drive said [gear] *first and second gears* and actuate said flyweights.

Re. 31,155
PUMP DOWN SYSTEM FOR PLACING AND RETRIEVING SUBSURFACE WELL EQUIPMENT

Samuel S. Crocker, Houston, Tex., assignor to Schlumberger Technology Corporation, New York, N.Y.

Original No. 3,899,025, dated Aug. 12, 1975, Ser. No. 295,684, Oct. 6, 1972. Continuation-in-part of Ser. No. 243,380, Apr. 4, 1972, Pat. No. 3,799,259. Application for reissue Aug. 6, 1979, Ser. No. 64,333

Int. Cl.³ E21B *7/06*

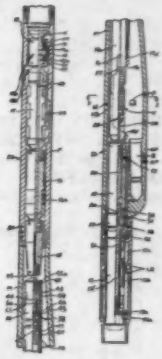
U.S. Cl. 166—117.5 22 Claims

1. A segmented assembly for handling well equipment of the type which is movable through a tubing string for longitudinal engagement with [a] *an open-topped* side pocket recess of a side pocket mandrel comprising:

a. pressure actuated drive means connected with said assembly for driving said assembly through said tubing string in response to pressure applied to said drive means;

b. well equipment handling means connected in said assembly for handling and holding said well equipment;

c. position responsive stopping means in said assembly *operable during downward movement of said assembly in the tubing string* for automatically stopping said assembly at a predetermined location relative to a selected side pocket recess, *said stopping means including outwardly biased latch means having a profile designed to mate with and engage recess means in the tubing string below said selected side pocket recess to thereby automatically terminate said downward movement, said recess means having the same profile as the profile of said latch means;*



d. orienting means in said assembly for circumferentially orienting said assembly at a predetermined position relative to said side pocket recess; and

e. flexible joint means connecting one end of said handling means to said stopping means and the other end of said handling means to said orienting means whereby said assembly may flex to move through curved [sect-ons] *sections* of said tubing string.

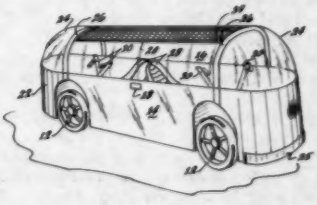
Re. 31,156
ENERGY EFFICIENT PASSENGER VEHICLE

Richard Dessert, 3520 Centinela Ave., #5, Los Angeles, Calif. 90066

Original No. 4,181,188, dated Jan. 1, 1980, Ser. No. 937,503, Aug. 28, 1978. Application for reissue Oct. 17, 1980, Ser. No. 197,931

Int. Cl.³ B60L *11/18*

U.S. Cl. 180—2 A 14 Claims



7. An energy efficient electrically powered vehicle which comprises:

an elongated substantially closed body having two spaced supporting wheels at each end;

a power module at each end of said body comprising electrical batteries and electrical drive means adapted to power said wheels;

an elongated solar panel substantially covered with photovoltaic cells located in the roof of said body adapted to generate electricity to charge said batteries; and

means to pivot said solar panel about substantially the panel longitudinal centerline so that said panel may be oriented towards the sun.

Re. 31,157

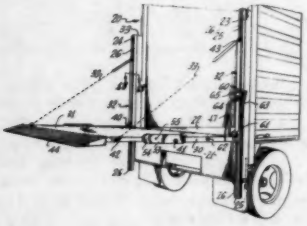
SELF-FOLDING PLATFORM

William V. Perkins, Marina Del Rey, Calif., assignor to Maxon Industries, Inc., Huntington Park, Calif.

Original No. 4,007,844, dated Feb. 15, 1977, Ser. No. 654,334, Feb. 2, 1976. Application for reissue Feb. 9, 1979, Ser. No. 10,616

Int. Cl.³ B60P *1/44*

U.S. Cl. 414—545 **21 Claims**



1. A self-folding and unfolding platform lift comprising:

a supporting framework;

a vertically elongate runner assembly mounted on said framework for vertical movement;

an inner platform section having a forward edge horizontally pivotally connected to a lower end of said runner assembly;

an outer platform section having a forward edge connected to a rear edge of said inner platform section by a horizontal hinge means positioned for folding an underside of said outer platform section into superposition over an underside of said inner platform section;

a finite length of a flexible member having one end connected at a rear edge of said outer platform section and another end connected to an upper end of said runner assembly;

whereby when said platform lift is unfolded, said finite length of said flexible member forms a straight line;

means intermediate said inner platform section and said framework to translate vertical movement of said runner assembly into folding or unfolding movement of said inner platform section;

and means [defining a rigid rearward extension of] *extending from the rear of* said inner platform section *defining a bearing in spaced relation to said horizontal hinge means* for [contacting and] seating an intermediate portion of said flexible member for effecting folding or unfolding movement of said outer platform section, relative to said hinge means, as a function of corresponding folding or unfolding movement of said inner platform section.

Re. 31,158

APPARATUS FOR INDICATING UTERINE ACTIVITY IN LABOR

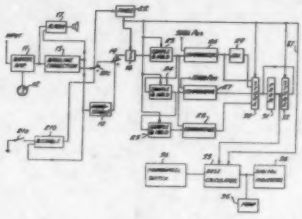
Michael C. Carter, and Philip J. Steer, both of London, England, assignors to National Research Development Corporation, London, England

Original No. 4,114,188, dated Sep. 12, 1978, Ser. No. 757,024, Jan. 5, 1977. Application for reissue Nov. 14, 1979, Ser. No. 94,160

Claims priority, application United Kingdom, Jun. 23, 1976, 26042/76

Int. Cl.³ G06F *15/42*; A61B *5/04, 5/10*

U.S. Cl. 364—415 **20 Claims**



1. Apparatus for indicating uterine activity in labor including:

means adapted to be coupled to a uterine pressure transducer for providing a first signal representative of intrauterine pressure,

means for providing a second signal [which is equal to] *representative of* the first signal except [when a] *during each* contraction [occurs] when [it takes up a value equal to that of] the *value the* first signal *would have had* in the absence of [the] *that* contraction *is represented*,

[means for subtracting the second signal from the first 65 signal, to provide a third signal,] *means for deriving a third signal from the first and second signals, the third signal being representative of the additional uterine pressure, which occurs during contractions, above the uterine pressure existing in the absence of contractions*, and

means for integrating the third signal over intervals of at least ten but not more than thirty minutes to provide an activity signal indicative of uterine activity in labor.

Re. 31,159

FLYING METHOD AND SYSTEM USING TOTAL ENERGY FOR AN AIRCRAFT

Jean-Luc Sicre, Meudon LaForet, France, assignor to Societe Francaise d'Equipement pour la Navigation Aerienne, Velizy-villacoublay, France

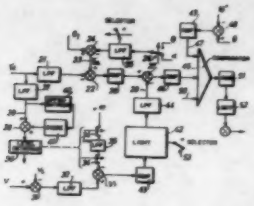
Original No. 4,071,893, dated Jan. 31, 1978, Ser. No. 703,006, Jul. 6, 1976. Application for reissue Feb. 29, 1980, Ser. No. 125,879

Int. Cl.³ G06G *7/78*; B64C *13/50*

U.S. Cl. 364—427 **22 Claims**

1. A flying method using total [power] *energy*, for an aircraft, and comprising the following steps, governing the aerodynamic [gradient] *flight path angle* γa by reference to a desired [gradient] *flight path angle* γd, obtaining the desired [gradient] *flight path angle* γd by modulating the [total gradient] *potential flight path* γt by the difference between the

aircraft speed V and a reference speed V_2, and displaying an error signal δ representative of the difference between the



aerodynamic [gradient] *flight path angle* γa and the desired [gradient] *flight path angle* γd.

Re. 31,160

TRACKING CONTROL APPARATUS FOR USE IN APPARATUS FOR REPRODUCING VIDEO SIGNALS FROM A ROTARY RECORDING MEDIUM

Hisao Kinjo, Yokohama, Japan, assignor to Victor Company of Japan, Ltd., Yokohama, Japan

Original No. 4,190,859, dated Feb. 26, 1980, Ser. No. 884,142, Mar. 7, 1978. Application for reissue Jul. 13, 1981, Ser. No. 283,047

Claims priority, application Japan, Mar. 8, 1977, 52-25260

Int. Cl.³ G11B *21/10*

U.S. Cl. 369—124 **6 Claims**

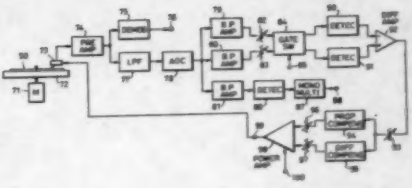
1. A tracking control system in a reproducing apparatus having a transducer for reproducing signals recorded on a rotary recording medium in which a main information signal has been recorded in a plurality of adjacent tracks, first and second reference signals having different frequencies, each of said reference signals being alternately recorded at intermediate positions between longitudinal center lines of the adjacent tracks, and a third reference signal being recorded at positions corresponding to a switching of the first and second reference signals, said first, second and third reference signals being in a frequency band which is lower than the frequency band of the main information signal, said tracking control apparatus comprising:

means for controlling the reproducing transducer to correctly track along the main information signal track;

a first separating means for filtering and separating a low frequency band component including at least the first, second and third reference signals from the signal reproduced by the reproducing transducer;

a second separating means for separating the low frequency band component into the first, second and third reference signals;

means for detecting the separated first and second reference signals;



means for selectively switching the separated first and second reference signals responsive to the separated third reference signal, said switched first and second reference signals being applied to the detecting means;

a control signal producing means for producing a control signal in response to the outputs of the detecting means and for applying the control signal to the tracking control means; and

automatic gain control means for bringing the [levels] *total level* of *at least* the separated first[,] *and* second [and third] reference signals to a predetermined level, said automatic gain control means being in a signal transmission path between the first separating means and the control signal producing means.

PLANT PATENTS

GRANTED FEBRUARY 22, 1983

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

4,984

NECTARINE TREE

Albert A. Boos, 6947 S. Reed Ave., Reedley, Calif. 93654

Filed Aug. 17, 1981, Ser. No. 293,302

Int. Cl.³ A01H *5/03*

U.S. Cl. Plt.—41 **1 Claim**

1. A new and distinct variety of nectarine tree, substantially as illustrated and described, particularly characterized in comparison with the Fantasia by fruit in harvest approximately two weeks later, by fruit having a more attractive, waxy, bright red blush color, and by fruit of superior firmness of flesh and toughness of skin.

4,985

PEACH TREE

Claron O. Hesse, Fresno, Calif., assignor to The Regents of the University of California, Berkeley, Calif.

Filed Jul. 27, 1981, Ser. No. 287,534

Int. Cl.³ A01H *5/03*

U.S. Cl. Plt.—42 **1 Claim**

1. A new and distinct variety of peach tree, substantially as illustrated and described, characterized by white-flesh, semi-freestone fruit which bears general resemblance to the fruit of the Springtime but ripens approximately three days earlier, is slightly larger in size with a less pronounced tip, and has more red blush color.

PATENTS

GRANTED FEB. 22, 1983

ERRATA

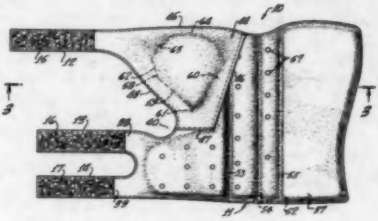
For CLASS	See PATENT NO.
412–003	4,374,441
445–007	4,374,450
445–022	4,374,451
445–066	4,374,452
436–063	4,374,644
420–424	4,374,667
420–507	4,374,668
548–422	4,374,774

PATENTS

GRANTED FEBRUARY 22, 1983

GENERAL AND MECHANICAL

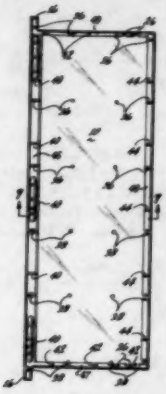
4,374,439
WRIST SUPPORT WITH PALM PAD
Bill Norman, 14431 Galy, Tustin, Calif. 92680
Filed Jan. 5, 1981, Ser. No. 222,655
Int. Cl.³ A41D *19/00*
U.S. Cl. 2—161 A **17 Claims**



1. A bowling wrist support comprising
a body of flexible sheet material adapted to be wrapped around the hand and wrist,
said body having a first portion positionable over the back of the hand and wrist,
a second portion positionable over the edge of the hand and wrist, and a third portion positionable over the palm of the hand and the inside of the wrist,
means for securing said body in position when so wrapped around a hand and wrist,
said third portion of said body defining a pocket positionable generally at the center of the palm of the hand when said body is so wrapped around the hand and wrist, and
a pad of resilient material in said pocket,
said pad having a lateral dimension sufficiently smaller than that of said pocket to allow said pad to be shifted laterally in said pocket relative to said body for permitting selective locations of said pad relative to the palm of a hand around which said body is so wrapped,
said pad tapering in thickness toward at least one edge thereof, said pocket having an opening providing access to said pad for permitting manual movement of said pad to such selective locations.

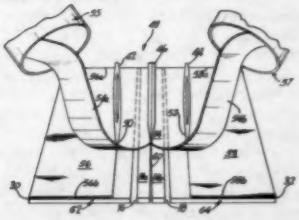
4,374,440
HONEYCOMB
Herbert Drapkin, Hidden Hills, Calif., assignor to Perma-Comb Systems, Inc., Woodland Hills, Calif.
Filed Feb. 10, 1981, Ser. No. 233,295
Int. Cl.³ A01K *47/02*
U.S. Cl. 6—10 **20 Claims**

15. A molded plastic honeycomb formed by two substantially identical half sections, and with each half section including
a front face and a back face,
the front face including a plurality of regularly spaced hexagonally shaped cells extending inwardly from the front face and with each cell having a size, shape and configuration substantially equal to the size, shape and configuration of a natural honeycomb cell,
the backface including elongated recesses extending along the top, bottom and side edges of the half section to lighten the weight of the half section and with the top, bottom and sides having substantially flush surfaces and additionally including rib members periodically spaced along the elongated recesses, and
locking portions for providing locking between the back faces of two half sections to produce a single plastic honeycomb from the two half sections and with the plastic



honeycomb having opposite front faces including the cells for the immediate depositing of honey or eggs.

4,374,441
METHOD OF MAKING A BOOK COVER AND POCKET ELEMENT THEREFOR
Leewood C. Carter, Warren; Robin P. Neary, Basking Ridge, both of N.J., and Jay C. Curtis, Wheaton, Ill., assignors to Book Covers, Inc., Newark, N.J.
Filed May 23, 1980, Ser. No. 152,798
Int. Cl.³ B42C *15/00*
U.S. Cl. 412—3 **5 Claims**



1. A method of making a book cover including a pocket element, comprising the steps of:
supplying a continuous web of cardboard material to a work station, said cardboard material having first and second surfaces, and first and second longitudinally-extending lateral edges on said first surface;
superimposing a continuous web of paper on said first surface;
adhering said first and second lateral edges of said cardboard web and said paper web to form a continuous composite web;
forming spaced-apart, first and second longitudinally-extending slits in said continuous paper web to define first and second pocket elements;
forming a third slit along the center of said cardboard web to separate said composite web into first and second composite sections;

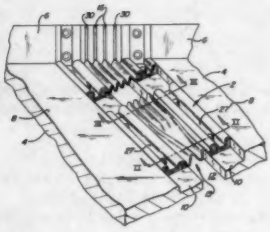
cutting said first and second composite sections in a transverse direction at spaced intervals to form first and second book covers, said first book cover including said first pocket element adhered thereto, and said second book cover including said second pocket element adhered thereto.

4,374,442

EXPANSION JOINT SEALING ASSEMBLY FOR CURB AND ROADWAY INTERSECTIONS

Richard D. Hein, and William L. Fleshood, both of Wabash, Ind., assignors to The General Tire & Rubber Company, Akron, Ohio

Filed Jul. 27, 1981, Ser. No. 287,347
Int. Cl.³ E01D 19/06; E01C 11/02
U.S. Cl. 14—16.5 3 Claims



1. An expansion joint sealing assembly for sealing a gap between adjacent deck sections at the intersection of curb and roadway portions of said deck sections, said sealing assembly including a first pair of elongated elastomeric pads designed for placement on said roadway portions of said deck sections along opposite sides of said gap, a second pair of elongated elastomeric pads designed for placement on said curb portions of said deck sections on opposite sides of said gap, an elongated flexible membrane member designed to extend across said gap between both said curb portions and said roadway portions of said deck sections, said flexible membrane member having longitudinally extending side edge portions designed to be secured between said pads and said deck sections, and means to secure said elongated pads to said deck sections with said side edge portions of said membrane member held between said pads and said deck sections, said assembly characterized by the improvement comprising:

(a) said side edge portions of said flexible membrane member each having molded convolutions with laterally extending axes,

(b) each of said convolutions having an upwardly facing first rounded portion with a locking rib projecting upwardly from said first rounded portion, each of said locking ribs extending longitudinally of said membrane member and being separated from adjacent locking ribs by downwardly facing second rounded portions of said convolutions, and

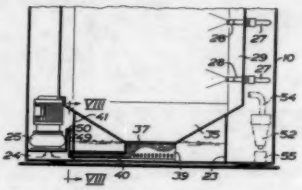
(c) said elongated elastomeric pads each having downwardly facing slots extending longitudinally of the respective pad, said locking ribs on said membrane member fitting within said slots in said elastomeric pads to hold said convoluted side edge portions of said membrane member in place between said pads and said deck sections.

4,374,443

CLEANING MACHINE WITH PARTICULATE ABRASIVE

Carl G. C. Mosell, Casa Spalato No. 2, Sitio de Calahonda, Mijas Costa, Malaga, Spain

PCT No. PCT/SE80/00094, § 371 Date Dec. 2, 1980, § 102(e) Date Dec. 2, 1980, PCT Pub. No. WO80/02105, PCT Pub. Date Oct. 16, 1980
PCT Filed Apr. 1, 1980, Ser. No. 220,071
Claims priority, application European Pat. Off., Apr. 2, 1979, 79850019.5; Sweden, Oct. 9, 1979, 7908348
Int. Cl.³ A47L 15/14, 15/42; B08B 3/02; B24C 7/00
U.S. Cl. 15—3 24 Claims



1. In a cleaning machine with means for blasting the goods to be cleaned by means of liquid containing granules, comprising a treatment chamber for receiving the goods; a liquid container; pump means, the suction side of which is connected to the liquid container for sucking-in liquid; nozzle means connected to the pressure side of the pump; means for ejecting liquid towards the goods in the treatment chamber; and means for supplying granules to liquid supplied to the nozzle means, and for separating granules from liquid ejected from the nozzle means; the improvement which comprises as the means for supplying granules to liquid supplied to the nozzle means and separating granules from liquid ejected from the nozzle means, a liquid-permeable compartment which is located inside the liquid container with a bottom outlet in the treatment chamber connecting to the liquid container via the liquid-permeable compartment; said compartment being connected through a valve-controlled opening to the suction side of the pump means for supplying the granules to the liquid through this opening, such that liquid containing the granules is sucked-up and circulated by the pump means, or alternatively retaining the granules in the liquid-permeable compartment such that liquid only is sucked-up and circulated by the pump means, the suction side of the pump means being connected to a suction chamber communicating with the liquid container, into which the valve-controlled opening opens; and a conduit portion of the liquid-permeable container extending through the liquid container from the bottom outlet of the treatment chamber into the suction chamber.

4,374,444

WATER DRIVEN BRUSH FOR CARS AND THE LIKE

Sam Zhadanov, 2944 W. 5th St., Apt. 20 J, Brooklyn, N.Y. 11224

Filed Mar. 9, 1981, Ser. No. 241,592
Int. Cl.³ A46B 13/02
U.S. Cl. 15—29 8 Claims

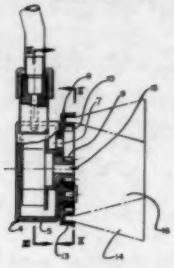
1. A water brush for cars and the like, comprising

a housing including a generally circular portion;

a water inlet opening for said housing and a water outlet opening for said housing;

a rotor having an axis and mounted within said cylindrical portion of said housing eccentrically with respect to the same, said rotor including a base having a plurality of blades mounted thereon, said blades being so positioned that they are rotated by the force of water exiting said inlet opening, said blades extending substantially radially of said rotor but having a gap between the inner end of each blade and said axis of said rotor providing a means for dissipation of water under pressure thereinto;

a brush member coupled with said rotor for rotation therewith, said eccentric mounting of said rotor providing a steadily increasing spacing between the outer ends of said blades of said rotor and the inner wall of the housing in the area of said generally cylindrical portion; and



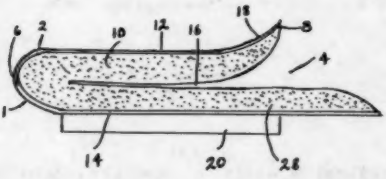
means for preventing the formation of a zone of negative pressure near said axis of said rotor, which zone would form otherwise in the absence of such means.

4,374,445

CLEANING DEVICE FOR USE WITH A DIP STICK

George L. Wilson, Cobourg, Canada, assignor to Michal Kachur, Guelph, Canada

Filed Feb. 24, 1981, Ser. No. 237,581
Claims priority, application Canada, Mar. 27, 1980, 348774
Int. Cl.³ F01M 11/12
U.S. Cl. 15—210 B 5 Claims



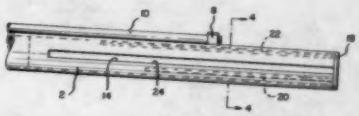
1. A cleaning device for use with a dip stick said device comprising a housing having a substantially U-shaped cross section defining two sides and a base, said housing having an inner surface that is completely covered by a layer of absorbent material said housing having a width in the area of said base substantially equal to twice the depth of the layer of absorbent material so that the absorbent material on each side is in contact in the area of said base, the two sides defining a space between the absorbent material that tapers outwards from the area of the base to an open end of said housing, the housing being made of rigid but flexible and resilient material so that the absorbent material on each side can be pressed together when part of a dip stick is laterally inserted and released to return to its original position after the dip stick has been longitudinally removed, thereby cleaning the dip stick of excess fluid.

4,374,446

VACUUM NOZZLE FOR CARPETED STAIR TREADS AND RISERS

Marcus Copperman, University Heights, Ohio, assignor to Certified Chemical & Equipment Co., Cleveland, Ohio

Filed Apr. 3, 1981, Ser. No. 250,563
Int. Cl.³ A47L 9/06
U.S. Cl. 15—415 A 7 Claims



1. A nozzle for cleaning a carpeted stair tread and riser comprising a hollow cylindrical body having a hollow extension in one end for connection to a source of suction, said body having an elongated port in its wall extending from the other end thereof and adjusted to lie against a surface having matter to be removed by said suction, and

valve means cooperating with said body for selectively restricting the axial length of the passageway through said port to the width of a stair tread or a stair riser, said valve means comprising a hollow cylindrical sleeve member which conforms in size and shape to the inner wall of said body and being selectively rotatably mounted therein with a friction fit.

3. A nozzle for cleaning a carpeted stair tread and riser comprising a hollow cylindrical body having a hollow extension in one end for connection to a source of suction, said body having an elongated port in its wall extending from the other end thereof and adjusted to lie against a surface having matter to be removed by said suction, and

valve means cooperating with said body member for selectively restricting the length of the passageway through said port to the width of a stair tread or a stair riser, said valve means comprising a hollow cylindrical sleeve member which conforms in size and shape to the inner wall of said body and is rotatably mounted therewith with a friction fit wherein the wall of said sleeve member is provided with a plurality of slots extending axially from the outer end thereof and which are angularly spaced, said slots being of different lengths, one of said slots corresponding to the length of a stair riser and another of said slots corresponding to the width of a stair tread.

4. A nozzle according to claim 3 including a closure cap secured to the outer end of the cylindrical sleeve member, said cap providing a handle for moving said valve to locate a selected slot in registration with said port in the cylindrical body member.

4,374,447

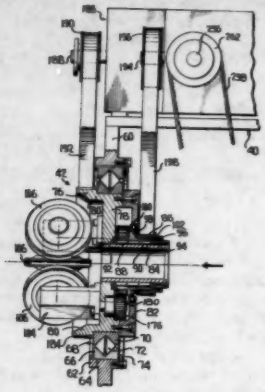
SIX-WHEEL SPINNING SHIRRING HEAD

Thomas W. Martinek, Covington, Ind., assignor to Teepak, Inc., Chicago, Ill.

Filed Apr. 2, 1980, Ser. No. 136,658
Int. Cl.³ A22C 11/00
U.S. Cl. 17—1 R 24 Claims

1. A right angle drive and support assembly for a rotatable element unit comprising a housing, means on said housing for mounting said housing on a supporting head, bearing means within said housing supporting a drive shaft for rotation within said housing, a support shaft carried by said housing, said drive shaft and said support shaft having axes lying in a common plane with said support shaft axis being at a right angle to said drive shaft axis, said support shaft projecting from said housing and having rotatably mounted thereon a rotatable element including a driven gear, a drive gear carried by said drive shaft and mating with said driven gear in driving relation, a mounting collar fixed with said driven gear, a separately formed

shirring wheel, and means for securing said shirring wheel to said mounting collar in angularly adjusted relation, and an anchor pin carried by said housing and extending through said



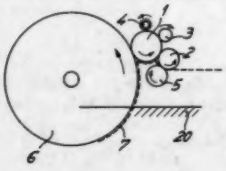
support shaft fixing said support shaft relative to said housing, said anchor pin being coaxial with said drive shaft and said drive shaft having a terminal bore receiving an end of said anchor pin in journalled supported relation.

4,374,448

WEB TAKE-OFF ROLLER ASSEMBLY

Walter Löffler, Schulstrasse 6, 7265 Neubulach 5, Fed. Rep. of Germany

Filed Sep. 25, 1980, Ser. No. 190,564
Claims priority, application Fed. Rep. of Germany, Sep. 29, 1979, 2939693
Int. Cl.³ D01G 15/46
U.S. Cl. 19—106 R 5 Claims



1. An improved web take-off roller assembly for use with carding machines of the type including a take-off roller adjacent a stripping roller and first and second guide rollers, the first guide roller cooperating with the take-off roller, the improvement comprising:

first mounting means for mounting the guide rollers for rotation about their respective axes; and

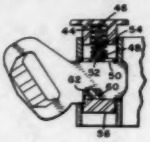
second mounting means for pivotally mounting said first mounting means and said guide rollers therewith about the axis of the take-off roller so that the guide rollers can be pivoted in unison about the axis of the take-up roller.

4,374,449

MINI SEAT BELT BUCKLE

Robert L. Stephenson, Utica, and Robert C. Pfeiffer, Sterling Heights, both of Mich., assignors to Allied Corporation, Morris Township, Morris County, N.J.

Filed Sep. 25, 1980, Ser. No. 191,058
Int. Cl.³ A44B 11/26
U.S. Cl. 24—230 AL 10 Claims



1. A seat belt buckle assembly useful for providing emergency release in a passive seat belt system, said buckle assembly comprising:

a housing formed from a single metal blank having exterior walls, a top and a bottom and an opening extending interiorly of said housing between said top and bottom;

a push button slidably mounted in a first direction within said opening and including an actuating portion extending outwardly of said opening, said button having a latch retaining means located interiorly of said opening in said housing:

latch means in the form of a bar retained in said latch retaining means, said latch means being movable with movement of said push button in a direction parallel to said first direction;

entrance means in an exterior wall of said housing adapted to receive a tongue member;

a tongue member having a recess therein adapted for engagement with said latch means when said tongue member is inserted in said entrance means to lock said assembly; and

slot means in an exterior wall of said housing opposite to said entrance means, the forward edge of said tongue member adapted to extend through said slot means when said tongue member is fully inserted in said housing.

4,374,450

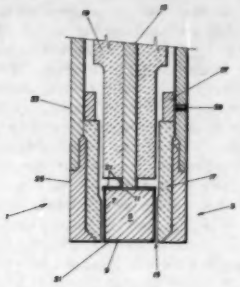
METHOD OF MAKING AN IGNITER PLUG WITH NICKEL COATING ON CENTER ELECTRODE

Gilbert G. Warren, and Colin A. Johnson, both of Sidney, N.Y., assignors to The Bendix Corporation, Southfield, Mich.

Continuation of Ser. No. 45,042, Jun. 4, 1979, abandoned. This application May 4, 1981, Ser. No. 260,456
Int. Cl.³ F23Q 3/70; H01T 13/20
U.S. Cl. 445—7 1 Claim

1. A method of making an ignitor plug of the type having a cylindrical center electrode of tungsten welded to a center supporting pin of electrically conductive material; an annular electrode surrounding the center electrode and spaced therefrom by an air gap, said annular electrode being comprised of a tungsten alloy in at least a portion thereof proximate the center electrode; and an insulating sleeve intermediate the electrodes, said method characterized by the steps of electroplating with nickel to a thickness of 25 to 75 microns the exposed surface of the center electrode, a portion of the supporting pin adjacent the center electrode and the weld; placing said

plated igniter plug in a vacuum chamber having a maximum pressure in said chamber of 1×10^{-4} torr and heating said



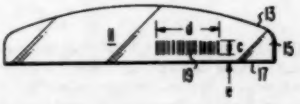
igniter plug while in said chamber to a temperature above 1,000 degrees centigrade.

4,374,451

METHOD OF ASSEMBLING A CRT USING A CODED SUBASSEMBLY OR PART

William R. Miller, Lancaster, Pa., assignor to RCA Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 41,091, May 21, 1979, abandoned. This application Aug. 10, 1981, Ser. No. 291,704
Claims priority, application Taiwan, Feb. 11, 1980, 6910347
Int. Cl.³ H01J 9/20; B23Q 7/12; G06F 15/46
U.S. Cl. 445—22 8 Claims



1. In a method of assembling a series of CRTs, each said CRT comprising a plurality of parts assembled with respect to one another, each said CRT including at least one glass envelope part, the steps comprising

(1) advancing a series of said at least one glass envelope parts,

(2) producing in each said parts a unique, optically machine-readable process-survivable coded marking on the external surface thereof,

(3) optically machine-reading each said coded marking,

(4) generating a control signal related to each said coded marking in response to step (3),

(5) in response to each signal, initiating a local process for action with respect to said envelope part and

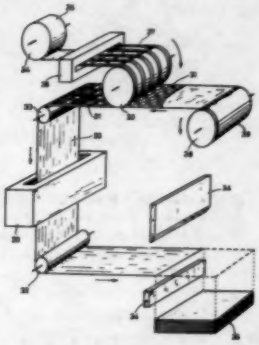
(6) recording data of said local process with reference to each said coded marking.

4,374,452

APPARATUS FOR MANUFACTURING A COLOR DISPLAY TUBE

Jacob Koorneef, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Division of Ser. No. 35,951, May 4, 1979, Pat. No. 4,222,159, which is a continuation of Ser. No. 893,939, Apr. 16, 1978, abandoned, which is a continuation of Ser. No. 759,112, Jan. 13, 1977, abandoned. This application Apr. 23, 1980, Ser. No. 142,938
Claims priority, application Netherlands, Jan. 16, 1976, 7600418
Int. Cl.³ H01J 9/00; B32B 3/24
U.S. Cl. 445—66 8 Claims



1. An apparatus for fabricating a quadrupole shadow mask from a long metal strip having a mulitiplicity of spaced apertures arranged in a plurality of longitudinally extending substantially parallel spaced rows, said apparatus comprising:

means for storing such a long metal strip and feeding it along a path;

means for supplying a plurality of strips of insulating material of generally the same width as the spacing between said rows and having on at least one side thereof a conductive layer;

means for positioning respective insulating strips adjacent said spaces between said rows, with said at least one side being the side remote from said metal strip, and then applying said insulating strips to said metal strip as said metal strip is fed along said path; and

means for cutting said metal strip with said insulating strips applied thereto into sheets of predetermined length,

CHARACTERIZED IN THAT said positioning and applying means includes a roller for pressing said insulating strips into engagement with said metal strip, said roller being provided with a plurality of circumferential grooves for guiding said insulating strips into registry with said spaces of said metal strip between said rows.

4,374,453

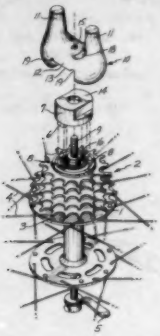
BICYCLE FREEWHEEL WRENCH PRY ADAPTER

Angel L. Rodriguez, 5627 University Way NE., Seattle, Wash. 98105

Filed Jan. 23, 1981, Ser. No. 228,014
Int. Cl.³ B23P 19/00
U.S. Cl. 29—426.5 6 Claims

4. The method of removing a bicycle freewheel from a bicycle wheel with a bicycle freewheel wrench having a wrench-engageable boss with opposite parallel sides and a bore between such parallel boss sides, the axis of which bore is parallel to such parallel boss sides, which method comprises fitting the bore of the bicycle freewheel wrench over a threaded quick-release rod of a bicycle wheel, screwing a

threaded bore in the base of a generally U-shaped wrench pry adapter onto the threaded quick-release rod, engaging the parallel sides of a generally rectangular channel recess in one side of the base of the wrench pry adapter with the opposite parallel sides of the bicycle freewheel wrench boss, and applying a torque to generally parallel legs upstanding from the side of the base of the wrench pry adapter opposite the channel recess, which torque is transmitted by the wrench pry adapter to the wrench-engageable boss of the freewheel wrench and then to the bicycle freewheel.



4,374,454

METHOD OF MANUFACTURING A SEMICONDUCTOR DEVICE

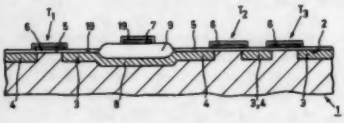
Pieter J. W. Jochems, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, Tarrytown, N.Y.

Filed Dec. 22, 1980, Ser. No. 219,161

Claims priority, application Netherlands, Jun. 23, 1980, 8003612

Int. Cl.³ H01L *21/22*

U.S. Cl. 29—571 **1 Claim**



1. A method of manufacturing a semiconductor device having a semiconductor body comprising a surface and a surface-adjoining region substantially of p-type silicon wherein at least two insulated gate field effect transistors are provided whose source and drain zones are formed by n-type surface-adjoining zones and wherein at least one further n-type surface zone is formed that constitutes a conductive connection between one of the source and drain zones of one of the two transistors and one of the source and drain zones of the other of the two transistors, in which method layer portions of a material masking the body against oxidation are provided at the areas intended for the transistors, a doping mask having an aperture at the area intended for the surface zone is provided at the surface, atoms selected from the group consisting of As and Sb are introduced through the aperture into the body, the body is subjected to an oxidation treatment using an oxidation mask comprising the layer portions (1) to obtain an oxide pattern which is sunk at least partly in the body and which extends beside the layer portions and above the surface zone and (2) to cause the As or Sb atoms to diffuse deeper into the body below and adjoining the oxide pattern so as to form the surface zone, insulated gate electrodes for the two transistors are then provided on both sides of and laterally spaced from the surface zone, and the source and drain zones are provided by introducing an impurity selected from the group consisting of P, As and Sb into the body in a self registering manner down to a depth at which the pair of source and drain zones that are connected together adjoin the surface zone below the oxide pattern, characterized in that: prior to the oxidation treatment, hereinafter termed the second oxidation treatment, a first masking layer that consists over at least part of its thickness of a material differing from silicon oxide and masking against oxidation is provided at the areas intended for the surface zone and the transistors and then at least one other oxidation treatment, hereinafter termed the first oxidation treatment, is carried out to obtain a first oxide pattern which is sunk at least partly in body and which has a thickness that makes the first oxide pattern suitable to form part of the doping mask; the doping mask is defined by means of a second masking layer which is provided over the first masking layer and over the first oxide pattern and which covers at least two first parts of the first masking layer at the areas intended for the transistors and which does not cover a second part of the first masking layer and at least a third part of the first oxide pattern adjoining the second part, the aperture coinciding substantially with the location of the second part, the first parts belonging to the oxidation mask; and the second oxidation treatment is carried out after removing at least the material of the second part that masks against oxidation.

4,374,455

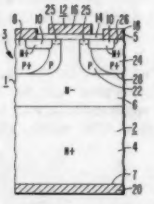
METHOD FOR MANUFACTURING A VERTICAL, GROOVED MOSFET

Lawrence A. Goodman, Plainsboro, N.J., assignor to RCA Corporation, New York, N.Y.

Division of Ser. No. 89,315, Oct. 30, 1979, abandoned. This application Feb. 22, 1982, Ser. No. 351,250

Int. Cl.³ H01L *21/22*

U.S. Cl. 29—571 **11 Claims**



1. A method for fabricating a VMOS device having minimized parasitic bipolar effects, comprising:

providing a semiconductor substrate having first and second opposing major surfaces including therein: a substantially planar first conductivity type drain region at the second surface; a substantially planar first conductivity type extended drain region of lower conductivity than the drain region disposed across the drain region; and a second conductivity type body region adjacent to the extended drain region;

forming a first conductivity type source region extending from the first surface within the boundaries of the body region;

forming a two layer structure over the source region, said structure comprising a secondary mask layer over a primary mask layer;

forming a pair of relatively high conductivity body regions, of lower conductivity than the source region, in those areas not covered with the two layer structure, said relatively high conductivity body regions extending from the first surface to approximately the same depth as the lower

conductivity body region and diffusing laterally beneath the two layer structure a predetermined distance;

undercutting the secondary mask layer a distance greater than said lateral diffusion distance so as to yield the secondary mask layer overhanging the primary mask layer;

stripping the secondary mask layer;

forming a third mask layer in areas not covered by the primary mask layer;

stripping the primary mask layer;

forming a groove in the area not masked by the third mask layer, so as to expose the relatively low conductivity body; and

forming a gate oxide on the exposed body region in the groove, a gate electrode on the gate oxide, a drain electrode on the drain region at the second surface, and a source electrode on the source region and relatively high conductivity body regions at the first surface.

4,374,456

PROCESS FOR PRODUCING A GAS DETECTING ELEMENT

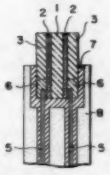
Akio Takami; Thutomu Saito, and Kazutoshi Tanaka, all of Nagoya, Japan, assignors to NGK Spark Plug Co., Ltd., Aichi, Japan

Division of Ser. No. 139,626, Apr. 14, 1980, Pat. No. 4,328,477. This application Aug. 19, 1981, Ser. No. 294,122

Claims priority, application Japan, Apr. 12, 1979, 54-45186

Int. Cl.³ H01G *9/00*

U.S. Cl. 29—588 **8 Claims**



1. A process for producing a gas detecting element comprising the steps of: bonding electrode layers to both sides of a porous semiconductor wafer comprising primarily a transition-metal oxide, disposing a protective layer on the entire surface of said electrode layers except for regions where a metal lead wire is to be coupled to said electrode layers, dividing the wafer into individual unit wafers, heating said wafers for a predetermined time period at a predetermined temperature, coupling a metal lead wire to the surface of each said electrode layer in each said regions with an electrically conductive adhesive, and covering each said region with a reinforcing insulating material.

4,374,457

METHOD OF FABRICATING COMPLEX MICRO-CIRCUIT BOARDS AND SUBSTRATES

Raymond E. Wiech, Jr., 4659 Pescadero Ave., San Diego, Calif. 92107

Filed Aug. 4, 1980, Ser. No. 174,929

Int. Cl.³ H01L *23/36, 23/52;* C04B *33/32, 41/14*

U.S. Cl. 29—591 **28 Claims**

1. A method of making a substrate comprising the steps of:

(a) providing a homogeneous composition formed of particulate material and binder,

(b) molding said composition to a predetermined shape having a planar surface having portions on said surface wherein heat producing elements will be secured,

(c) forming a continuous heat sink aperture region of predetermined geometry in said shape in a plane below the said surface of said shape and adjacent the said portions wherein heat producing elements will be secured, said aperture region extending to at least one surface of said shape,

(d) removing at least a portion of said binder, and

(e) sintering said shape after said binder removal.

4,374,458

METHOD OF CONNECTING A CO-AXIAL CABLE TO A CONNECTOR

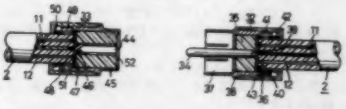
Hitoshi Komada, 28-3, Oaza Saito Aza Shimoiseji, Fuso-cho, Niwa-gun, Aichi-ken, Japan

Continuation of Ser. No. 41,298, May 22, 1979. This application Jan. 6, 1981, Ser. No. 222,941

Claims priority, application Japan, Jun. 13, 1978, 53-71657

Int. Cl.³ H01R *43/00*

U.S. Cl. 29—857 **3 Claims**



1. A method of connecting a coaxial cable having an outer circumferential ground shield and a central conductor to an electrical connector such as a phone plug or jack having a plurality of electrodes integrally secured therein and insulated from each other, said method comprising the steps of:

severing across the entire end of said coaxial cable smoothly normal to the longitudinal axis thereof to provide a single flat end face thereon and exposing only the end faces of said shield and central conductor;

axially moving said single severed flat end of said coaxial cable into contact with said electrical connector;

forcibly connecting said electrodes axially with the inner conductor and outer shield end faces exposed on said flat severed end of said coaxial cable; and

concurrently tightly securing the body of said coaxial cable to said electrical connector.

4,374,459

CLASSIFICATION INSTRUMENT

Clark R. Burton, Los Altos, Calif., assignor to Compair, Inc., Burlingame, Calif.

Filed Mar. 25, 1980, Ser. No. 133,949

Int. Cl.³ G01B *5/20, 7/28*

U.S. Cl. 33—174 C **18 Claims**

1. A classification instrument for accurately measuring open flow area between two vane elements having mounting buttresses at either end, comprising

support means,

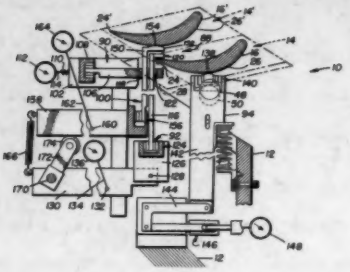
a precision jig in said support means adapted to receive and accurately position both the first vane element and its buttresses,

movable probes arranged upon the support means for accurately monitoring respectively the location of a trailing edge of the first vane element, the location of a convex airfoil surface of the first vane element, spacing between the buttresses as an indication of effective vane element length, and the effective thickness of the vane element,

indicating means carried by said support means and inter-

connected with the respective movable probes for indicating values monitored by the movable probes, and

a further set of movable probes for spaced apart engagement



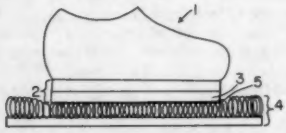
with a convex airfoil surface of the additional vane element, and indicating means being interconnected with the further set of movable probes in order to provide an indication of open flow area between the vane elements.

4,374,460

ANTI-STATIC SHOE SOLE

Marvin S. Towsend, 1365 Potomac Hts. Dr., Fort Washington, Md. 20744

Filed Aug. 11, 1981, Ser. No. 291,922
Int. Cl.³ A43B *13/12, 13/22;* A43D *9/00*
U.S. Cl. 36—30 R **9 Claims**



1. An anti-static shoe sole for use on the surface of a floor covering, said sole having a bottom portion having a coating made from substantially the same material as the surface of the floor covering, thereby preventing the build up of static electric charges between said sole and the floor covering when said sole with said coating is used on the surface of the floor covering.

4,374,461

METHOD OF CONSTRUCTING TIRE AND IDENTIFICATION TAG THEREFOR

Alan E. Cohn, Akron, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

Division of Ser. No. 205,139, Nov. 10, 1980, Pat. No. 4,351,548. This application Oct. 23, 1981, Ser. No. 313,930
Int. Cl.³ G09F *3/00, 3/14*
U.S. Cl. 40—2 R **3 Claims**

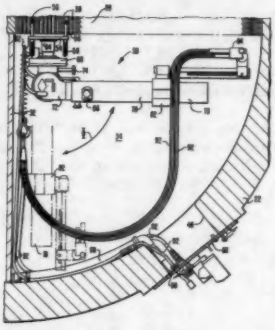
1. A heat-curable rubber composition identified by a paper identification tag releasably attached to said composition, said tag having a surface area of one of its two sides in the range of about 2 to about 30, preferably about 5 to about 16 square inches (in²) and having an information-providing ink composition thereon which covers about 10 to about 50, preferably about 20 to about 40 percent of the surface area of at least one side of said tag where said ink composition contains about 5 to about 25, preferably about 8 to about 15 weight percent, based on the total ink composition, of a heat activatable blowing agent.

4,374,462

DECONTAMINATION APPARATUS

Thaddeus A. Wojcik, Salem Township, Westmoreland County; Richard M. Kobuck, Delmont, and Ronald F. Antol, North Huntingdon, all of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Aug. 2, 1979, Ser. No. 63,324
Int. Cl.³ B24C *3/32*
U.S. Cl. 51—411 **4 Claims**



1. Decontamination apparatus for decontaminating radioactive nuclear steam generators comprising:

an attachment mechanism attached to a tube sheet of said nuclear steam generator for completely suspending said decontamination apparatus therefrom;

a first support member attached to the under side of said attachment mechanism;

a harmonic first drive mechanism attached to said first support member for rotating said decontamination apparatus in a horizontal plane parallel to said tube sheet;

a harmonic second drive mechanism attached to said first drive mechanism for rotating said decontamination apparatus in a plane substantially perpendicular to the plane of said tube sheet;

a support arm attached to said second drive mechanism;

a nozzle support mounted on said support arm;

at least two nozzles mounted on said nozzle support and arranged at between approximately 30° to 70° from the center line of said support arm;

a chain and sprocket third drive mechanism disposed in said support arm and attached to said nozzle support for moving said nozzle support and said nozzles in a direction along said support arm, said drive mechanisms providing a means of locating said nozzles near the various surfaces of said nuclear steam generator while maintaining said nozzles approximately 6 to 10 inches from said surfaces; and

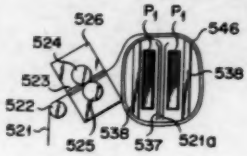
water-grit supply means connected to said nozzles for supplying a water-grit mixture to said nozzles at a pressure between approximately 200 psi and 2700 psi and with said water grit-mixture having a grit concentration of approximately 3% to 7% by weight, said nozzles directing said water-grit mixture toward the surface of said nuclear steam generator and thus decontaminating said nuclear steam generator.

4,374,463

APPARATUS FOR PROCESSING SHEET LIKE MATERIALS

Hideo Omura, and Shigeo Horino, both of Tokyo, Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Jun. 24, 1980, Ser. No. 162,485
Claims priority, application Japan, Jun. 29, 1979, 54-81460
Int. Cl.³ B65B 13/06, 27/08
U.S. Cl. 53—54 8 Claims



1. An apparatus for processing sheet like materials, comprising:

a unit sheet-stack transfer mechanism for (a) receiving at a first position a unit sheet-stack as a stack of a predetermined number of sheets of sheet like materials, the respective sheet like materials being postured substantially horizontally, and (b) transferring said stack to a second position whereat said respective sheets are postured substantially vertically;

a mechanism for forming a bundling loop for bundling said unit sheet-stack by winding into a loop a free end portion of a tape fed from a tape feeding source; and

a bundling mechanism having means for inserting said unit sheet-stack into said bundling loop while said respective sheets thereof are postured in said substantially vertical state, means for tightening said bundling loop to squeeze said inserted unit sheet-stack, and means for bonding an outer end portion of said bundling loop tightened to an outer periphery portion of said bundling loop, wherein said bundling loop forming mechanism comprises:

first and second guide plates disposed at predetermined positions for guiding said unit sheet-stack when said unit sheet-stack is inserted into said bundling loop

third and fourth guide plates arranged between said first and second guide plates and in parallel therewith, for guiding said free tape end;

rollers for feeding said free tape end between said third and fourth guide plates; and

means for rotating said first to fourth guide plates in respective predetermined directions to thereby form said loop.

4,374,464

CORK MOUNTING APPARATUS

Bengt S. R. Tillander, Fröslunda, 190 70 Fjärdhundra, Sweden

Filed Sep. 5, 1980, Ser. No. 184,372
Claims priority, application Sweden, Sep. 5, 1979, 7907374
Int. Cl.³ B67B 1/04, 5/00; B65B 67/00
U.S. Cl. 53—324 10 Claims

1. A cork mounting apparatus for bottles comprising two cooperating parts, the cooperating parts including a lower part and an upper part axially movable relative to one another, a top of the lower part including an internal socket having a lower edge adapted to press against a top of a bottle-neck for guiding a cork, a movable piston connected with the upper part and arranged to urge the cork through said socket, the lower part including a surrounding tube which at least partially serves as a holder for the lower part, the piston being connected with an outer tube of the upper part which outer tube surrounds an

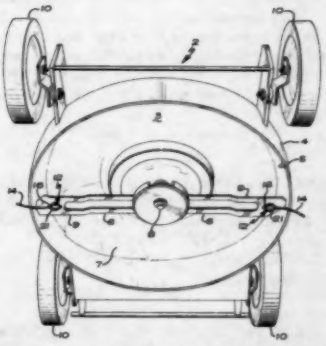
outer wall of the lower part and provides a centering arrangement for the piston and the socket.

4,374,465

ATTACHMENT FOR ROTARY LAWN MOWER

Robert C. Comer, Hopkins, Minn., assignor to The Toro Company, Minneapolis, Minn.

Filed Feb. 2, 1982, Ser. No. 344,910
Int. Cl.³ A01D 55/18
U.S. Cl. 56—12.7 10 Claims



1. A rotary lawn mower of a type having a housing that includes a cutting chamber bounded by downwardly depending side walls having a lower edge; means for supporting said housing for movement over a ground surface at a selected height thereabove; a substantially rigid cutting blade located within said cutting chamber, wherein said cutting blade has a top side and a bottom side and at least one sharpened cutting edge; and means in said housing for rotating said blade in a substantially horizontal cutting plane such that said cutting edge severs standing vegetation; wherein the improvement relates to a trimming attachment for said blade, which comprises:

(a) a filament holder;

(b) means for selectively and releasably mounting said holder in said blade; and

(c) a flexible filament contained in said holder, which filament extends radially outwardly relative to said blade and is sufficiently long to extend out past the side walls of said housing when said holder is mounted on said blade,

whereby said filament can be used to trim vegetation outside said housing by selectively coupling said filament holder to said blade.

4,374,466

GAS TURBINE ENGINE

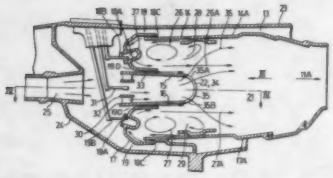
Arthur Sotheran, Bristol, England, assignor to Rolls Royce Limited, London, England

Filed Mar. 5, 1980, Ser. No. 127,501

Claims priority, application United Kingdom, Mar. 8, 1979, 7908290

Int. Cl.³ F23R *3/32, 3/18*

U.S. Cl. 60—39.36 5 Claims



1. A gas turbine engine comprising an air compressor, a combustion chamber comprising a pre-mixing section arranged to receive air flow from the compressor and having spaced apart walls, means for discharging fuel into the pre-mixing section thereby to creat an air-fuel mixture therein, a main section arranged downstream of the pre-mixing section, an array of baffles arranged in spaced-apart pairs, the two baffles of each pair having a common portion from which the two baffles diverge in the direction from the pre-mixing to the main section, adjacent said pairs being spaced apart to define flow passages therebetween, and cooling air duct means having inlets arranged to receive air flow from said compressor but being clear of any fuel supply and having outlets directed into a space defined between the baffles of each said pair of baffles thereby to cool the surfaces of the baffles facing the main section.

4,374,467

TEMPERATURE CONDITIONING SYSTEM SUITABLE FOR USE WITH A SOLAR ENERGY COLLECTION AND STORAGE APPARATUS OR A LOW TEMPERATURE ENERGY SOURCE

Patrick B. Briley, Tulsa, Okla., assignor to Hybrid Energy, Inc., Stillwater, Okla.

Continuation-in-part of Ser. No. 948,043, Oct. 2, 1978, abandoned, and a continuation of Ser. No. 55,524, Jul. 9, 1979, Pat. No. 4,248,049. This application Oct. 14, 1980, Ser. No. 196,864

Int. Cl.³ F25B *27/02*

U.S. Cl. 62—238.1 19 Claims

1. A temperature conditioning system comprising:

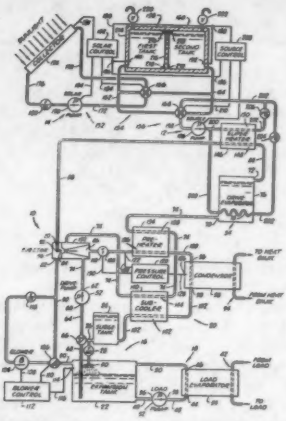
a drive pump for pumping a refrigerant having an inlet portion and an outlet portion;

a drive evaporator connected in a heat exchanging relationship with a heat source, the drive evaporator having an inlet portion and an outlet portion, the inlet portion being connected to the outlet portion of the drive pump;

an ejector having a drive inlet portion connected to the outlet portion of the drive evaporator a suction inlet portion, a mixing portion in fluid communication with the drive and suction inlet portions, and a diffuser portion in fluid communication with the mixing portion;

a condenser connected in a heat exchanging relationship with a heat sink, the condenser having an inlet portion and an outlet portion, the inlet portion being connected to the diffuser portion of the ejector and the outlet portion being in fluid communication with the inlet portion of the drive pump;

a load evaporator connected in a heat exchanging relationship with a second heat source, the load evaporator having an inlet portion and an outlet portion, the inlet portion being in fluid communication with the outlet portion of



the condenser and the outlet portion being connected to the suction inlet portion of the ejector; and

a conduit for conveying a refrigerant which has been cooled by the condenser in a heat exchanging relationship with a refrigerant in the ejector such that the refrigerant in the ejector is cooled.

4,374,468

ABSORPTION TYPE REFRIGERATION SYSTEM INCLUDING COMPRESSOR DRIVEN AUXILIARY FLOW CIRCUITS ISOLATED FROM MAIN CIRCUIT

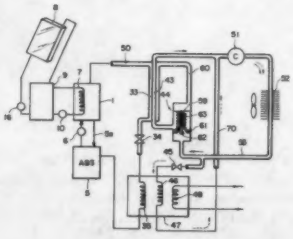
Isao Takeshita, Neyagawa, and Shiro Hozumi, Sakai, both of Japan, assignors to Matsushita Electric Industrial Company, Kadoma, Japan

Filed Mar. 10, 1981, Ser. No. 242,193

Claims priority, application Japan, Mar. 18, 1980, 55-35017; Nov. 19, 1980, 55-163629

Int. Cl.³ F25D *17/00*

U.S. Cl. 62—333 8 Claims



1. A refrigeration system comprising:

a main closed loop working-fluid flow circuit including a refrigerant generator, condenser, an evaporator and an absorber, all of which are connected in series in said flow circuit;

a first auxiliary closed loop refrigerant flow circuit including a compressor, a condenser and an evaporator, all of which are connected in series in the last-mentioned flow circuit,

the evaporator of the auxiliary flow circuit being arranged to cool the condenser of said main flow circuit, said auxiliary flow circuit further including means for controlling the pressure of said auxiliary flow circuit evaporator as a function of the pressure in said refrigerant generator; and

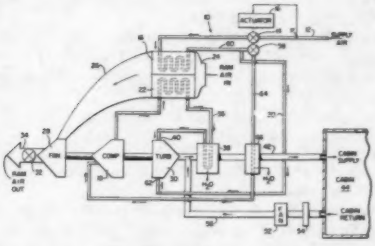
a second auxiliary refrigerant flow circuit connected in parallel with the first auxiliary flow circuit, said second auxiliary flow circuit including an evaporator located adjacent to the main flow circuit evaporator, said pressure controlling means comprising a valve for routing the refrigerant from said compressor to the evaporator of said second auxiliary flow circuit when the pressure in said refrigerant generator falls below a predetermined value.

4,374,469

VARIABLE CAPACITY AIR CYCLE REFRIGERATION SYSTEM

George C. Rannenberg, Canton, Conn., assignor to United Technologies Corporation, Hartford, Conn.

Filed Dec. 24, 1980, Ser. No. 219,612
Int. Cl.³ F25D *9/00*
U.S. Cl. 62—402 4 Claims



1. An air cycle refrigeration system for supplying conditioned air to an enclosure said system comprising a compressor for increasing the pressure of supply airflow thereto, discharge airflow from said compressor being fed to a turbine through a primary nozzle thereof, said compressor discharge airflow driving said turbine and being expanded, and cooled thereby and discharged therefrom, means for delivering said turbine discharge air to said enclosure, said turbine and compressor being mechanically interconnected whereby said turbine provides a measure of input power for driving said compressor, said air cycle refrigeration system being characterized by means channeling an additional portion of said supply air to said turbine through a second nozzle thereof, thereby bypassing said compressor, and means for regulating the flow of said compressor bypass airflow to said turbine, in response to the amount of available supply airflow, said compressor bypass air, with said compressor discharge air, being expanded by said turbine for enhancing the flow capacity and output of said system without adversely affecting compressor efficiency.

4,374,470

GEM RING WITH INTERCHANGEABLE SETTINGS

E. Arnold Isaacson, 4033 Milky Way, Salt Lake City, Utah 84117

Filed Feb. 17, 1981, Ser. No. 234,736
Int. Cl.³ A44C *17/04*
U.S. Cl. 63—29 R 6 Claims

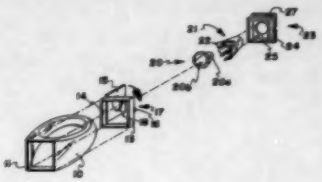
1. A finger ring comprising

a mounting having an opening through the front thereof;

closure means fixed to the inside of the mounting and adapted to extend across the opening;

latch means to hold the closure means in position across said opening;

a replaceable insert unit adapted to fit in the opening and to be held in place by the closure means and the latch means, said insert unit including a setting projecting through the opening to the outer surface of the mounting, a crown in which the setting is inserted, the points of the crown being bent over the setting to hold the setting in the crown; and



a casing in which the setting and crown are positioned, said casing including a setting edge guard projecting through the opening and around the setting.

4,374,471

PLANT FOR TRANSFERRING YARN HANKS ALONG A PATH PASSING THROUGH A TREATING UNIT

Federico Minnetti, Pieve a Nievole, Italy, assignor to Officine Minnetti di Ornella Raveggi & C.S.a.s., Pieve a Nievole, Italy

Filed Sep. 26, 1980, Ser. No. 191,341
Int. Cl.³ D06B *15/02*
U.S. Cl. 68—245 18 Claims

1. A plant for squeezing hank yarns, the hanks being carried on sticks, said plant comprising means for conveying the hanks carried on sticks to a squeezing unit, a squeezing unit for squeezing the hanks, and means for removing squeezed hanks from the squeezing unit, characterized in that said means for conveying comprises a chain feeder having two parallel chains formed of interconnected plates, and two parallel chain members formed with plate elements secured to the plates of said chains, each element having an outwardly open notch or cutout, such a notch or cutout being of such dimensions as to receive two overlapped approached parallel hank holding sticks.

4,374,472

VIBRATION SENSOR

Toshifumi Nishimura, Yokosuka, Japan, assignor to Nissan Motor Co., Ltd., Yokohama, Japan

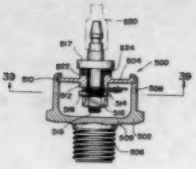
Filed Sep. 24, 1980, Ser. No. 190,284
Claims priority, application Japan, Sep. 29, 1979, 54-126056; Sep. 29, 1979, 54-126057; Dec. 7, 1979, 54-169360[U]; Dec. 27, 1979, 54-171624; Dec. 27, 1979, 54-185091[U]; Feb. 29, 1980, 55-25988[U]
Int. Cl.³ G01L *23/22*
U.S. Cl. 73—35 52 Claims

1. A vibration sensor comprising:

a housing having means for attaching said sensor to a vibrating source;

a vibrator including a piezoelectric element having an electrically conductive member on both plane surfaces thereof to form electrodes thereon and a metal plate made from a metal having a thermal expansion ratio approximately the same as

that of said piezoelectric element, said piezoelectric element being responsive to vibration applied thereto and generating



an electric signal having potential corresponding to the magnitude of sensed vibration; and

a threaded fastener mounting said vibrator to said housing.

4,374,473

CABLE TESTING SYSTEM

Thomas H. Brockman, 622 Ponce DeLeon, Pass Christian, Miss. 39571

Filed Apr. 16, 1981, Ser. No. 254,697
Int. Cl.³ G01L 5/06; B66C 1/12
U.S. Cl. 73—158 **3 Claims**

1. A crane system for testing a cable comprising:

a weight indicator system;

means for suspending said weight indicator system directly from a crane lifting block, bypassing a crane hook, such that said weight indicator will not spin relative to said crane lifting block; and

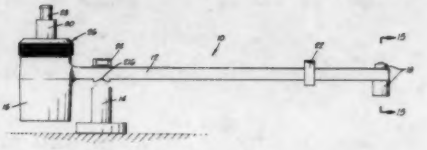
a dead man in the ground such that said cable is attached between said weight indicator system and said dead man when being tested.

4,374,474

PRESSURIZED DENSITY MEASURING APPARATUS

David E. Cain, Houston, Tex., assignor to Halliburton Company, Duncan, Okla.

Filed Mar. 9, 1981, Ser. No. 242,024
Int. Cl.³ G01N 9/04
U.S. Cl. 73—433 **29 Claims**



1. An apparatus for measuring density of a fluid in a pressurized state, comprising:

a balance arm;

a fulcrum means for supporting said balance arm;

a balance weight slidably disposed on said balance arm;

a pressurizable container means, disposed on said balance arm, for holding said fluid;

valve means, connected to said container means, for allowing pressurized fluid to flow into said container means and for retaining said fluid in said container means under pressure; and

pump means for supplying said pressurized fluid to said valve means, said pump means including:

a pump body having a cylindrical bore disposed therein and an outlet port means for communicating said bore with said valve means; and

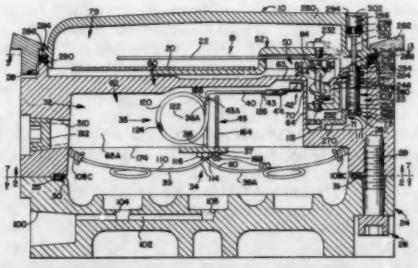
a rotatable piston member means, threadedly engaged with said pump body, for pressurizing fluid contained in said bore upon rotation of said piston member means relative to said pump body, said pump body and said rotatable piston member means being so arranged and constructed that said fluid is maintained in a pressurized state when effort to rotate said rotatable piston member means is released.

4,374,475

DIFFERENTIAL PRESSURE GAUGE

John Hestich, Glendora, Calif., assignor to Dwyer Instruments, Inc., Michigan City, Ind.

Filed Feb. 9, 1981, Ser. No. 232,988
Int. Cl.³ G01L 7/04
U.S. Cl. 73—736 **20 Claims**



20. In a gauge that includes linear to rotary motion transforming means including a helix journalled for rotation about its longitudinal axis, with the helix having an indicator connected thereto, a magnet for producing rotational movement of said helix about its said axis in response to linear movement of the magnet alongside and lengthwise of said helix axis, and

a housing for the helix and magnet, a zero datum adjacent to which the indicator is disposed, with the housing defining a pressure chamber in which the magnet is mounted, and including sensing means mounted in said pressure chamber for shifting said magnet in a path extending lengthwise of said helix in response to differential pressure changes in said chamber, with the magnet path and the helix axis being in coplanar relation, the improvement including:

a bourdon tube helically coiled about a rectilinear axis and disposed in said housing pressure chamber spaced from said helix with said magnet disposed between the helix and said tube and said tube axis extending crosswise of said plane of said magnet path and helix axis,

one end of said tube being sealed and mounting a support arm lying in said plane on which the magnet is mounted for movement in said plane,

means for mounting said tube in fixed relation to the housing at the other end of same,

with the other end of said tube being sealed and including means for connecting said tube other end to a first fluid pressure source exterior of the housing,

said tube comprising said sensing means,

and means for connecting the housing pressure chamber to a second fluid pressure source exterior of the housing,

said means for connecting the housing pressure chamber to the second fluid pressure source comprising means for venting same to atmosphere.

4,374,476

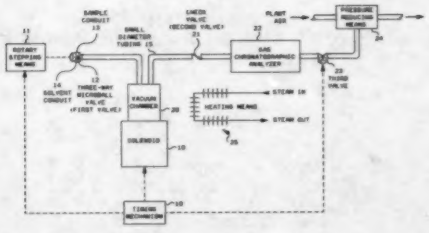
VACUUM VAPORIZING METHOD AND APPARATUS

Gregory A. Ford, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Nov. 28, 1977, Ser. No. 855,489

Int. Cl.³ G01N *31/08*

U.S. Cl. 73—23.1 **8 Claims**



1. An apparatus comprising:

a first valve having a first inlet means in communication with an outlet means only when said first valve is in a first position and a second inlet means in communication with the outlet means only when said first valve is in a second position;

a heatable sealable chamber divided into a first section and a second section by a movable piston positioned within said chamber, wherein the first section of said chamber has one inlet and one outlet, wherein the second section of said chamber is in open communication with the atmosphere, wherein the second section of said chamber contains a spring exerting a force against the piston in the direction of the first section of the chamber when the spring is compressed, wherein an actuator means external to said chamber is attached to said piston which, upon actuation, quickly forces said piston in the direction of the second section of the chamber;

a second valve having an inlet means and an outlet means and which passes a fluid only from the inlet means to the outlet means;

a gas chromatographic analyzer having an inlet means and an outlet means;

a third valve having an inlet means and an outlet means and an open position and a closed position; and

a pressure reducing means;

wherein the outlet means of the first valve is connected to the inlet means of the first section of the chamber;

wherein the inlet means of the second valve is connected to the outlet means of the first section of the chamber;

wherein the inlet means of the gas chromatographic analyzer is connected to the outlet means of the second valve and wherein the outlet means of the gas chromatographic analyzer is connected to the inlet means of the third valve; and

wherein the pressure reducing means is connected to the outlet means of the third valve.

4,374,477

ULTRASONIC MEASURING DEVICE

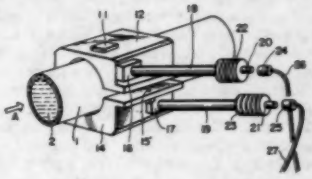
Akira Kikuchi; Akio Hagiya, both of Tokyo; Kazuteru Shinkai; Masaru Kohno, both of Kawasaki, and Kiyoshi Saito, Tachikawa all of Japan, assignors to Fuji Electric Co., Ltd., Kanagawa, Japan

Filed Mar. 24, 1981, Ser. No. 247,032

Claims priority, application Japan, Mar. 25, 1980, 55-37844

Int. Cl.³ G01F *1/66*

U.S. Cl. 73—861.18 **6 Claims**



1. An ultrasonic measuring device comprising: two ultrasonic transducers arranged on opposite sides of a pipe in which a fluid to be measured flows, a first of said ultrasonic transducers transmitting an ultrasonic wave towards said fluid and a second of said ultrasonic transducer receiving said ultrasonic wave which has passed through said fluid; a first frame holding said first ultrasonic transducer; a second frame having an end portion holding said second ultrasonic transducer, said first and second frames having end portions hingedly coupled to one another and said first and second frames being mounted on said pipe with said first and second frames clamping said pipe; tightening means for tightening free end portions of said first and second frames together; first and second hollow pipes secured to said first and second frames, respectively; first and second connecting terminals mounted at ends of said first and second hollow pipes, respectively, away from said frames; and lead wires connected at first ends to said two ultrasonic transducers, one of said lead wires being disposed in each of said hollow pipes and being connected at second ends to said connecting terminals.

4,374,478

STORAGE TANKS FOR LIQUIDS

Herbert C. Secord, deceased, late of Siena, Italy, and by Fanny E. P. Secord, executor, London, United Kingdom, assignors to Ocean Phoenix Holdings NV, Curacao, Netherlands Antilles

Filed Jan. 3, 1980, Ser. No. 109,203

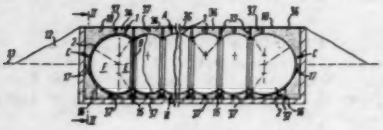
Claims priority, application United Kingdom, Jan. 11, 1979, 7900987; Sep. 2, 1979, 7938108

Int. Cl.³ G01M *3/00*; B65D *90/00, 6/00*

U.S. Cl. 73—863.31 **2 Claims**

1. A land storage tank arrangement for the storage of fluid media under pressure, comprising an internal-pressure-sustaining insulatable tank of generally rectangular cross-section

having a bottom wall, a top wall, two opposite longitudinal side walls and two opposite end walls; each of said bottom and top walls consisting of a multiplicity of equal-sized parallel lobes, and each said side wall consisting of one lobe, the side wall lobes also being equal-sized, all said lobes being of part-cylindrical form and being convex outwardly of the tank with the two inwardly-directly longitudinal edges of each lobe joined to a longitudinal edge of a lobe alongside; and said end walls consisting of a multiplicity of part spherical end wall elements having the same radius of curvature as said lobes and each joined at its inwardly directed edges to end wall elements alongside and to bottom, top and side wall lobes alongside to unite said bottom, top, side and end walls to one another; said insulatable tank further comprising a single series of parallel



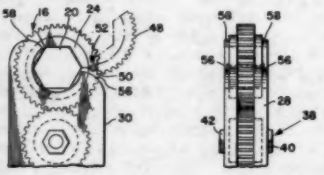
internal reinforcing plates, each plate extending from the joint between two lobes of the bottom wall to the respective opposite joint between two lobes of the top wall and extending longitudinally to the joints of opposed end wall elements to tie the tank end walls to one another longitudinally; said storage tank arrangement further comprising a shallow dyke in which the tank is sited at least partly below ground, said dyke having dyke walls being spaced from the tank by a space filled with a thermal insulating material and an inert gas atmosphere, a substantially flat roof which extends over the tank and is sealed to the dyke walls, and roof support means comprising feet spaced apart on the underside of the rood and sited so as to sit on the joints between adjacent lobes of the top wall or the tank whereby the span or the roof is supported by said insulatable tank.

4,374,479

TORQUE TRANSFER DEVICE FOR WRENCH APPLICATIONS

Peter L. Minotti, Box 75, Easton, Pa. 18042

Filed Dec. 11, 1980, Ser. No. 215,155
Int. Cl.³ B25B *17/00*
U.S. Cl. 81—57.3 **12 Claims**



1. A tool for transferring torque from a driving member to a workpiece comprising:

a. a odd numbered plurality of serially engaging identical gears rotatable about parallel axes, each of said gears including coaxial cylindrical shoulders extending outwardly from opposite sides thereof

b. a first gear of said plurality including engagement passageway means matingly engageable with said driving member for rotation of said first gear thereby;

c. a last gear of said plurality including passageway means for engaging said workpiece for rotation thereof by said last gear;

d. side plates sandwiching said plurality of gears therebetween and including cylindrical recesses defining bearing surfaces in respective facing surfaces of said plates, said bearing surfaces being journaled against respective facing surfaces of said gears for running contact therewith during gear rotation, said recesses having depth less than thickness of said plates so that outwardly facing surfaces of said plates present smooth solid faces overlying all of said gears, said side plates having rounded ends overlying first and last gears of said plurality, said rounded ends being formed on radaii slightly larger than respective radaii of said first and last gears of said plurality, said rounded ends being tangent with straight sides of said plates so that teeth of all said gears are within an envelope defined by parallel peripheries of said side plates, said plates including openings overlying the centers of said first and last gears for passage therethrough of said driving member and said workpiece for respective engagement thereof with said first and last gears, said openings being formed to have respective inscribed circles of smaller radius than said respective cylindrical recesses for said shoulders of said first and last gears formed in said side plates but larger than respective inscribed circles of said passageways of said first and last gears; and

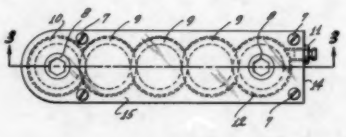
e. means passing through the center gear of said odd numbered plurality for connecting said side plates together thereby urging said respective bearing surfaces against said facing surfaces of said gears.

4,374,480

EXTENSION TOOL

William J. Diaz, 1028 W. Compton Blvd., Gardena, Calif. 90247

Filed Jan. 5, 1981, Ser. No. 222,710
Int. Cl.³ B25B *17/00*
U.S. Cl. 81—57.3 **6 Claims**



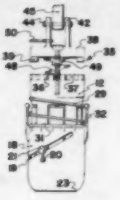
1. A wrench means for transmitting a torque to a screw fastener with restricted access, said wrench means comprising a non-rotating rigid elongated closed frame with a driven gear at one end, a driving gear at the opposite end, said driving and driven gears having multi-faceted recesses which accept standard square drive socket wrench components including ratchet wrenches, a gear train between the driving gear and driven gear including one or more idler gears all meshed together to provide a continuous torque transmission from the said driving gear to the said driven gear, all of said gears mounted into closely fitting circular recesses in said elongated closed frame, all of said gears completely supported on their outer diameters by said closely fitting circular recesses with the outer periphere of each gear acting as a shaft, with the said closely fitting circular recesses acting as bearings, said gears having no central supporting shafts, said gears retained into said elongated frame by one or more covers, said covers fastened to said elongated frame by fastener means and said covers and said elongated frame allowing external access to the driving and driven gears.

4,374,481

ADJUSTABLE SOCKET WITH DETACHABLE OR LOCKABLE ENGAGING HANDLE COMPONENT

Michael Brodie, P.O. Box 64, Vilna, Alberta, Canada

Filed Jun. 10, 1980, Ser. No. 158,225
Claims priority, application United Kingdom, Oct. 10, 1979, 7935169
Int. Cl.³ B25B 13/32
U.S. Cl. 81—115 19 Claims



1. An adjustable socket assembly for nuts and bolts comprising in combination a substantially cylindrical body portion, a plurality of bolt and nut gripping fingers pivoted by the inner ends thereof around said body portion and extending beyond the distal end thereof, an adjusting shell surrounding said body portion and said fingers, means mounting said shell for partial rotation around said body portion, said partial rotation extending and retracting said shell along said body portion, means cooperating between said shell and said body portion to extend and retract one relative to the other as said shell rotates, means cooperating between said fingers and said shell to close and open the distal ends of said fingers relative to one another, and spring means operatively extending between said shell and said body portion normally urging said shell to extend and rotate relative to said body portion whereby said fingers are in the full open position, said body portion including a shoulder formed on the inner end thereof, said spring means surrounding said body portion and reacting between the underside of said shoulder and the inner end of said, a handle component, a connector for connecting said handle component to the upper end of said body portion and further means selectively and operatively connecting said handle component to said body portion for detachably engaging said handle component to said body portion whereby rotation of said handle component in either direction, rotates said body portion and said shell in the same direction, said further means comprising a clutch member on the upper side of said shoulder, a clutch engaging member journalled for free rotation by said connector upon the upper side of said shoulder facing said clutch member, spring means normally urging said clutch member and said clutch engaging member apart, said handle component being operatively connected to said clutch engaging member, downward pressure of said clutch engaging member overcoming said last mentioned spring means and detachably engaging said clutch engaging member with said clutch member whereby rotation of said handle in either direction rotates said body portion and said shell in the same direction, and means selectively engageable between said clutch engaging member and said connector to selectively lock said clutch engaging member into engagement with said clutch member.

4,374,482

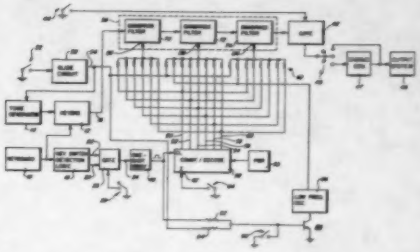
VOCAL EFFECT FOR MUSICAL INSTRUMENT

Douglas R. Moore, Vernon Hills, and Alberto Kniepkamp, Arlington Heights, both of Ill., assignors to Norlin Industries, Inc., White Plains, N.Y.

Filed Dec. 23, 1980, Ser. No. 219,999
Int. Cl.³ G10H 1/02
U.S. Cl. 84—1.19 19 Claims

1. In an electronic musical instrument of the type having a keyboard including a plurality of key switches each of which upon depression actuates a means which develops a tone signal whose frequency is determined by the particular operated key switche, the improvement for imparting a vocal effect to said tone signal comprising:

means responsive to the operation of said key switches for producing an indexing signal characterized by a logic transition which occurs for each change in the operational status of said key switches;



control means having a plurality of outputs sequentially actuated in response to successive transitions of said indexing signal; and

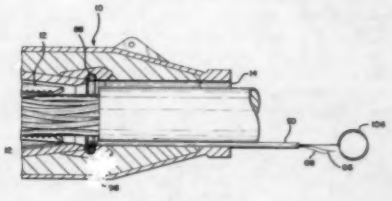
filter means programmable in response to each of said actuated control means outputs for modifying said tone signal to simultate a different vowel-like sound for producing said vocal effect.

4,374,483

IGNITION SYSTEM FOR AN ELECTRICAL CONNECTOR

George Kanoff, Elizabethtown, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Filed Mar. 30, 1981, Ser. No. 248,763
Int. Cl.³ F42C 19/12; H02G 15/08
U.S. Cl. 89—1 B 3 Claims



1. A device for use with an internally fired electrical connector of the type having detonating wires extending from the ignitor assembly within the connector through one end to the outside, said device comprising:

a. first means within the connector to which the detonating wires may be secured as they pass out of the connector, such as being tied in the manner of a double clove hitch or the like;

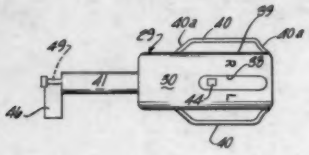
b. a tube for positioning in the connector with one end adjacent to the first means and the second end extending out of the connector, said tube being adapted for threading the detonating wires therethrough;

c. second means for immobilizing the detonating wires at the end of the tube adjacent the first means so that after firing, the detonating wires may be broken off at the first means by twisting the tube.

4,374,484
COMPENSATOR FOR MUZZLE CLIMB

Marthinus J. Bekker, and Douglas J. M. Hall, both of Salisbury, Southern Rhodesia, assignors to DRW Corporation, Troy, Mich.

Continuation-in-part of Ser. No. 868,631, Jan. 11, 1978, Pat. No. 4,235,152. This application Mar. 26, 1980, Ser. No. 134,045
Claims priority, application Southern Rhodesia, Jan. 12, 1977, 7/77; Oct. 17, 1977, 207/77
Int. Cl.³ F41F *17/12*
U.S. Cl. 89—14 C **15 Claims**



1. A lift compensator having a longitudinal axis and adapted to be mounted in an operating position on a gun barrel adjacent to the muzzle end, said compensator comprising an element having a sidewall extending longitudinally of said axis and having a plurality of vent means in said sidewall spaced circumferentially around said axis and arranged for communicating with and discharging combustion gases from the barrel transversely of said axis when at said operating position, and means for effecting a reaction force to compensate for transverse muzzle reaction when the gun is fired comprising deflector means associated with selected vent means and extending from said sidewall into the path of the gases discharged transversely from the associated vent means for redirecting said gases in a predetermined different direction transversely of said axis,

said compensator adapted for use with a gun having a plurality of flash suppressing ports spaced circumferentially around said barrel adjacent to its muzzle end and communicating with the barrel for discharging combustion gases transversely of said barrel, said vent means being arranged for selective communication with said ports for venting said gases therefrom transversely of said barrel when at said operating position,

said element of said compensator comprising a cylindrical sleeve, said vent means comprising two approximately diametrically spaced vents in said sleeve and a third vent in said sleeve between the first two vents, the remainder of said sleeve being impervious to gas flow therethrough.

4,374,485
SINGLE ANNULAR MEMBRANE TYPE OF PNEUMATIC POSITIONER

Sergio Lattuada, Bergamo, Italy, assignor to S.T.I. Strumentazione Industriale S.p.A., Gorle, Italy

Filed Jan. 2, 1980, Ser. No. 155,546
Claims priority, application Italy, Dec. 21, 1979, 2939 A/79
Int. Cl.³ F15B *13/16*
U.S. Cl. 91—387 **3 Claims**

1. A pneumatic positioner for use with a fluid motor having a piston rod, said pneumatic positioner comprising:

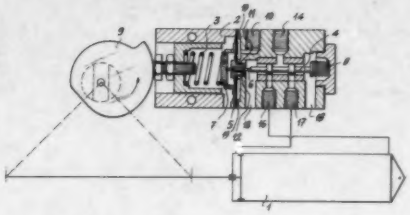
a generally hollow body defining an annular control pressure air chamber in said body;

an annular diaphragm forming one wall of said air chamber, said annular diaphragm having in its center an opening and being rigidly mounted to said body at both its inner and outer peripheries,

a dish-like member engaging a circular area of said diaphragm between its inner and outer peripheries;

biasing means for applying a variable biasing force to said dish-like member in the direction of said diaphragm and in response to the position of the piston rod;

a valve stem engaging at its one end said dish-like member and extending through a hole in said body concentric with the center of said diaphragm and said air chamber,



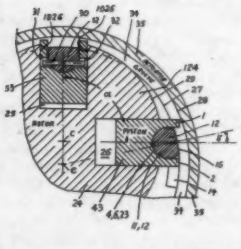
said valve stem being slidably movable within said hole without contact with said body;

a valve operably coupled to said valve stem for controlling the flow of fluid to and from said motor.

4,374,486
RADIAL PISTON MOTOR OR PUMP

Karl Eickmann, 2420 Isshiki, Hayama-machi, Kanagawa-ken, Japan

Filed Nov. 8, 1979, Ser. No. 92,791
Int. Cl.³ F01B *13/06*; C22C *33/00*
U.S. Cl. 91—488 **27 Claims**



1. In a radial piston device, wherein fluid flows from inlet means through passages into and through substantially radially arranged cylinders of a rotor revolvably mounted in a housing of said device and discharges out from said cylinders through passages and outlet means,

the combination of pistons reciprocating in said cylinders, slippers interposed between a piston stroke actuator means and the pistons, a slipper-piston bearing for each individual piston and slipper located parallel to the axis of rotation of said rotor which makes said slipper tiltable and pivotable on the respective bearing bed in the respective piston;

an "H-form" of each individual slipper when seen from top, having slots between the guide portions of said slipper laterally of said slots;

each individual cylinder of said cylinders provided with wall-portions which extend from portions of the wall of said cylinder in the directions of said respective portions of the wall of said cylinder along respective radial extension segments of said rotor; and an improvement;

wherein said improvement consists in the provision of radial extensions of portions of said pistons in radially outward direction relative to said rotor,

wherein said extensions are located perpendicular to the axis of said slipper-piston bearing and at least partially outwardly of said rotor,

wherein retaining means are provided between said extensions and radially outwardly of a portion of said slipper for holding said piston and slipper in a joint and tiltable disposition, and;

wherein said extensions form face portions extending from the outer face of said piston in the direction of the respective portion of said outer face of said piston to be guided at least partially on said wall portions of said cylinder and to radially slide therealong.

4,374,487

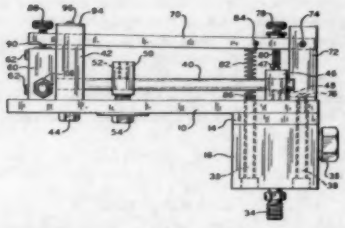
PILOT WITH CANTILEVERED SPRING

Neil H. Akkerman, Kingwood, Tex., and Bruce D. Christensen, New Orleans, La., assignors to Baker CAC, Belle Chasse, La.

Continuation of Ser. No. 23,201, Mar. 23, 1979, abandoned. This application Jan. 16, 1981, Ser. No. 225,593

Int. Cl.³ F16K *31/385*

U.S. Cl. 92—95 **8 Claims**



1. A fluid pressure actuated pilot comprising: a sensing piston; diaphragm means providing a fluid-tight seal between a source of fluid pressure to be sensed and said piston, said piston and a portion of said diaphragm means being movable upon changes in the pressure of the sensed fluid; a pair of cantilevered spring rods, each of said rods having a static end portion and a dynamic end portion opposite said static end portion, said dynamic end portions of said spring rods disposed for common movement in a reference plane substantially normal to the movement of said piston, means fixedly secured to said dynamic end portions of said rods for interconnecting said dynamic end portions of said rods and operably coupling said dynamic end portions of said rods to said piston; clamp means fixedly secured to said rods intermediate said static end portions and said dynamic end portions and adjustment means coupled to said clamp means for displacing said rods in a direction normal to said reference plane whereby the static preload force of said spring rods may be increased and decreased by adjusting said adjustment means.

4,374,488

WHEY FILTER

Harold J. Peterson, Iowa County, Wis., assignor to Farmers Pride Cheese, Inc., Arena, Wis.

Continuation of Ser. No. 81,004, Oct. 1, 1979, abandoned. This application Apr. 6, 1981, Ser. No. 250,921

Int. Cl.³ A01J *25/00, 25/11;* A23C *19/02*

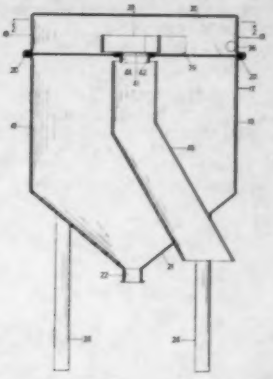
U.S. Cl. 99—459 **12 Claims**

1. A filter for removing fine particles of cheese curd from liquid whey comprising:

a stationary tank (18) having a substantially vertically extending cylindrical portion therein;

a mesh screen (30) transversely positioned in the cylindrical portion of the tank (18), the screen (30) being of circular shape so as to extend completely across the cylindrical portion of the tank (18) and being maintained in quiescent relation by fixed engagement with the tank (18);

at least one inlet (36) for introducing whey with fine curd particles into the tank (18) just above the screen (30), the inlet (36) oriented so as to direct the input whey in a trajectory generally tangential to the periphery of the screen (30) so that the whey tends to filter downwardly through the screen (30) and the curd particles tend to remain above the screen (30) and be forced toward the



center thereof by the tangential flow of whey on the screen; and

an outlet (22) in the lower portion of the tank (18) below the screen (30) for discharging whey from the tank (18).

4,374,489

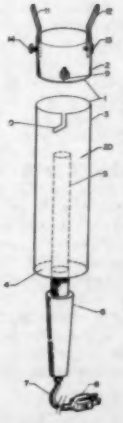
ADAPTABLE FOOD SMOKER ATTACHMENT

Jack Robbins, Mount Ida, Ark., assignor to Ole-Arkie Corp., Hot Springs, Ark.

Filed Jun. 15, 1981, Ser. No. 273,491

Int. Cl.³ A23B *4/04*

U.S. Cl. 99—482 **3 Claims**



1. An adaptable food smoker attachment comprised of two parts, the first part being a coupling unit having at the upper end thereof means for removable connection to a draft opening located on the underside of a fixed or portable cooking grill, oven, or meat storage case; the second part being a smoking column, which is a tube, hollow column, or barrel having at the upper end thereof a means for removable connection to the lower end of the coupling unit in a locking fashion and disconnection therefrom in a reverse locking fashion, the smoking column having an electric power heating source sealed in the

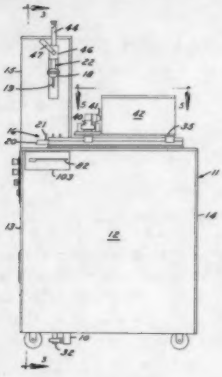
lower portion thereof, the upper end of the electric power heating source extending upwards into the smoking column and being spaced from the walls thereof so that a space in the smoking column is provided for containment of hardwood particles or flakes to be smoldered, the lower end of the electric power heating source terminating in means for connection to a source of electric current.

4,374,490

HAM SLICING MACHINE

Michael R. Boyer, 3405 Cranberry, North Street, Mich. 48049

Filed Oct. 14, 1980, Ser. No. 196,783
Int. Cl.³ A23N *7/00*
U.S. Cl. 99—538 11 Claims



1. A ham slicing machine including a frame, ham mounting means, driving means including a first motor connected to a rotatable feed screw carried by the frame for simultaneously rotating and moving the ham mounting means longitudinally of the axis of rotation of the feed screw, and a reciprocatable slicing knife supported by the frame for movement transversely of the axis of rotation of the feed screw into engagement with the ham during the rotating and longitudinal movements thereof, wherein the improvement comprises:

a slicing table;

guide means carried by the frame for slidably supporting the slicing table for linear movement in a direction transverse to the axis of rotation of the feed screw between working and non-working positions relative to the ham;

means including a second motor mounted on the slicing table for supporting and reciprocatably driving the slicing knife in directions transverse to the direction of linear movement of the slicing table;

operating means for moving the slicing table between said working and non-working positions; and

motion transmitting means acting between the operating means and the slicing table for resiliently urging the slicing table to the working position in response to movement of the operating means to the working position.

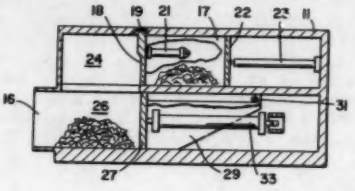
4,374,491

APPARATUS FOR TREATING AND DISPOSING OF BIO-HAZARDOUS WASTE AND SOLID WASTE

Don J. Stortroen, and Michael L. Brown, both of P.O. Box 1183, Tracy, Calif. 95376

Filed Dec. 12, 1980, Ser. No. 215,836
Int. Cl.³ B30B *15/30*
U.S. Cl. 100—73 4 Claims

1. Apparatus for receiving, treating, and disposing of bio-hazardous or infectious solid wastes and non-hazardous or non-infectious solid wastes, comprising a housing defining a pair of discrete separate adjacent chambers, the first of said chambers being enclosed and having an opening therein through which infectious waste may be introduced, said first chamber being adapted to permit steaming and sterilization of the infectious waste, the second of said chambers being enclosed and having an opening therein through which non-infectious material may be introduced, means defining a passage interconnecting said first and second chambers, a closure



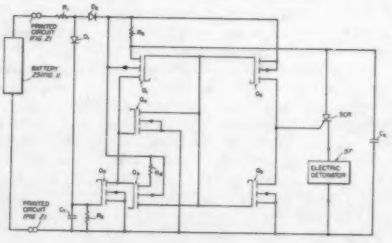
for selectively opening and closing said passage, means for ejecting the sterilized contents from said first chamber into said second chamber through said passage when said closure is in an open position, and compaction means in said second chamber for selectively compacting the non-infectious waste and for compacting the infectious waste received from said first chamber and for ejecting all of such waste from said housing at one end of said second chamber.

4,374,492

ANTIPERSONNEL MINE

Ernest Goldberg, Westford; Gray C. Trembly, Arlington, and William A. Zarr, Concord, all of Mass., assignors to Raytheon Company, Lexington, Mass.

Filed Apr. 2, 1976, Ser. No. 673,019
Int. Cl.³ F42C *11/06*
U.S. Cl. 102—220 3 Claims



1. In an antipersonnel mine incorporating a delayed action electrical detonator, an improved timing arrangement for actuating such detonator, such arrangement comprising:

(a) a first and a second capacitor;

(b) means for charging the first and the second capacitor and maintaining the charge on both capacitors until a timing period is to be initiated;

(c) resistor means, operative when a timing period is initiated, for discharging the first capacitor according to a preselected time constant; and

(d) electronic switching means, interposed between the second capacitor and the electrical detonator, such switching means being latched in an unactuated state by the charge on the first capacitor during the timing period and being actuable by the charge on the second capacitor only at the end of the timing period to discharge the second capacitor through the electrical detonator when the first capacitor is discharged to a predetermined level, such switching means including:

(i) a silicon controlled rectifier having the second capaci-

tor connected to its anode electrode and the electrical detonator connected in series with the silicon controlled rectifier;

(ii) means, including a first normally conducting field effect transistor, for grounding the control electrode of the silicon controlled rectifier during the timing period; and

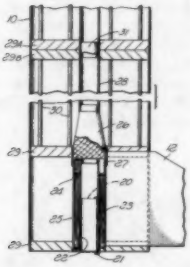
(iii) means, including a second normally nonconducting field effect transistor, for rendering such first field effect transistor nonconducting and for rendering such second field effect transistor conducting to connect the second capacitor to the control electrode of the silicon controlled rectifier at the end of the timing period.

4,374,493

SYSTEM FOR MODEL ROCKET CONSTRUCTION

Lawrence B. Hoffing, 14733 McCormick, Van Nuys, Calif. 91411

Filed Jun. 29, 1981, Ser. No. 278,818
Int. Cl.³ F42B *4/08*; A63H *33/20*
U.S. Cl. 102—348 **3 Claims**



1. A model rocket assembly comprising:

(a) a rocket body having an internal rigid tube containing a solid fuel rocket motor and extending substantially the entire length of the rocket and defining a frame;

(b) substantially circular spacer disks concentric to said tube and spaced along the length of said tube;

(c) a plurality of ribs joined to the outer circumferences of said disks substantially spanning the length of the body of the rocket and defining a frame;

(d) skin formed around the frame of ribs in substantially cylindrical configuration spanning the length of the rocket and defining an enclosed void;

(e) the top portion of said rocket body defining an aerodynamic nose assembly;

(f) aerodynamic fins joined at the base of the rocket body;

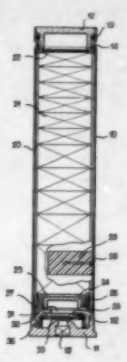
(g) said body being defined as a plurality of body sections, each constructed of an internal rigid tube, at least two circular spacer disks coaxial to said tube, a plurality of ribs joined to the outer circumferences of said disks and a skin formed around the frame of ribs in substantially cylindrical configuration such that the sections may be joined together by fastening the circular spacer disk of one section to a disk of next adjacent section forming a continuous cylindrical rocket body.

4,374,494

ELECTRO-MAGNETIC DECOY-LAUNCHER AMMUNITION

Louis Maury, Toulouse, France, assignor to Societe E. Lacroix-Tous Artifices, France

Filed Oct. 20, 1980, Ser. No. 198,636
Claims priority, application France, Nov. 9, 1979, 79 27681
Int. Cl.³ F42B *4/00*
U.S. Cl. 102—357 **5 Claims**



1. Electro-magnetic decoy-launcher ammunition, comprising an outer body having a lower portion, impeller means in said lower portion of said body, thrust means, a charge of electro-magnetic decoy enclosed in said body to be ejected by said thrust means when the impeller means is excited, means defining a tubular transfer container in which the charge remains inside the outer body, said tubular transfer container being closely fitted into said outer body, said transfer container having a bottom portion, said thrust means comprising a thrust piston in said bottom portion of the transfer container, said thrust piston including means defining an internal downwardly directed recess, peripheral sealing means for providing a seal against the inner surface of the transfer container, a top defining a plane surface, and a semi-rigid disc co-operating with the plane surface of the thrust piston and in contact with the charge on its other side, said impeller means being disposed to cause the propelling agent to co-operate with the internal recess of the thrust piston.

4,374,495

WARHEAD FOR ANTITANK MISSILES FEATURING A SHAPED CHARGE

Franz R. Thomanek, Am Schlosskeller 23, D-8898 Schrobenhausen-Sandizell, Fed. Rep. of Germany

Filed Sep. 12, 1978, Ser. No. 946,041
Claims priority, application Fed. Rep. of Germany, Sep. 17, 1977, 2741984
Int. Cl.³ F42B *13/10*
U.S. Cl. 102—476 **31 Claims**

1. In an anti-tank warhed for missiles of the type having at least one shaped charge, the improvement comprising said shaped charge being positioned within said warhead with its longitudinal axis directed downward forming an angle ϕ of 15 to 50 degrees with respect to the longitudinal axis of the war-

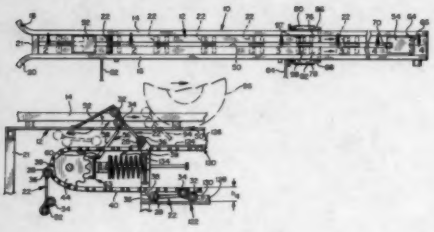
head in a vertical plane, and the shaped charge being large enough to at least substantially span the inner diameter of the warhead.

4,374,496

VEHICLE CONVEYOR

Daniel C. Hanna, 1133 SW. Rivington Dr., Portland, Oreg. 97201

Filed Dec. 31, 1980, Ser. No. 221,709
Int. Cl.³ B61B *10/04, 13/12;* B65G *17/24, 19/26*
U.S. Cl. 104—172 B **1 Claim**



1. In a conveyor having an endless chain for transporting a vehicle forwardly along a generally horizontal track, a roller mechanism for engaging a tire of the vehicle, the roller mechanism comprising:

an arm having a first end hingedly secured to the chain and a second end remote from the first end;

a first roller rotatably disposed on the arm near the second end;

a second roller rotatably disposed on the arm intermediate the ends; and

a third roller rotatably disposed on the arm near the first end;

the arm being selectively positionable relative to the track so that the axes of rotation of the rollers are horizontal and perpendicular to the direction of travel of the chain along the conveyor and so that the axis of rotation of the first roller is higher than the axis of rotation of the second roller, the first roller being carried entirely above the track in position to engage the tire of the vehicle when the tire is located forwardly of the first roller on the track, the second roller being disposed forwardly relative to the first roller and in position to roll on the track to position the first roller to engage the tire only, the axis of rotation of the first roller being disposed a distance above the track greater than one-half the vertical distance from the track to the highest point on the circumference of the first roller, the third roller being disposed forwardly relative to the second roller and in position to engage the underside of the track when the roller mechanism is engaging the tire and transporting the vehicle.

4,374,497

LEVELING TABLE

Pierre Harmand, 9 Rue Malaz, F-74600 Seynod, France

PCT No. PCT/FR79/00125, § 371 Date Sep. 8, 1980, § 102(e) Date Sep. 8, 1980, PCT Pub. No. WO80/01366, PCT Pub. Date Jul. 10, 1980
PCT Filed Dec. 13, 1979, Ser. No. 214,000
Claims priority, application France, Jan. 8, 1979, 79 00311
Int. Cl.³ A47F *5/12*
U.S. Cl. 108—4 **6 Claims**

1. An adjustable support for positioning an object in an exact predetermined position and maintaining it in said position, comprising:

a fixed substantially horizontal base;

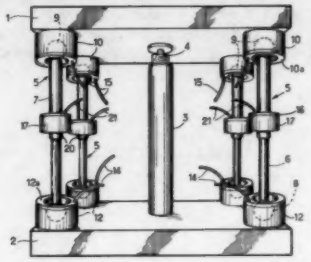
a table having a lower surface and an upper surface, said upper surface supporting said object;

a vertical leg having one end rigidly fixed to said base and the other end attached by a universal joint to the central portion of the lower surface of said table, said table being movable with respect to said vertical leg;

a plurality of lateral legs, each of said lateral legs comprising first and second telescoping elements having ball-heads at the ends thereof;

a first plurality of fixed seats secured to said base, each of said first plurality of seats receiving a ball-head of one of said first telescoping elements, said first plurality of fixed seats being spaced about said vertical leg;

a second plurality of fixed seats secured to the lower surface of said table, each of said second plurality of seats receiving a ball-head of one of said second telescoping elements and being located opposite a corresponding seat of said first plurality of fixed seats; and



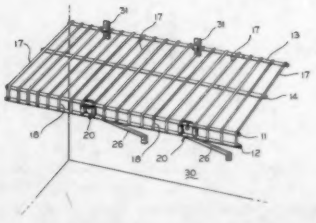
a plurality of locking pistons each slidably positioned with a respective one of said first and second pluralities of fixed seats adjacent the ball-head received within said seat, each of said locking pistons being pneumatically actuatable to lock said ball-head within its corresponding seat.

4,374,498

SUPPORT AND JOINER MEANS FOR SHELVING

Bernard Yellin, 6 Oak Brook Club Dr., Oak Brook, Ill. 60521

Filed Feb. 7, 1980, Ser. No. 119,256
Int. Cl.³ A47B *3/00, 5/00*
U.S. Cl. 108—114 **10 Claims**



1. A shelf and mounting structure including in combination first, second and third rods all in spaced and parallel relation with each other, said first and second rods both lying in a vertical plane and said second and third rods both lying in a horizontal plane, a plurality of stringers each extending transversely of said second and third rods and secured thereto in spaced relation, each said stringer having a forward integral depending portion secured to said first and second rods, a support member including a channel shaped body adapted to be received in a space delineated by said first and second rods and a pair of adjacent depending stringer portions, said channel shaped body having integral lateral terminal portions each engaging a forward surface of a respective depending stringer portion, and a bracket arm having upper and lower end portions with the upper end portion received in the channel of said body and adapted to bridge and engage the rear surfaces of said first and second rods, the lower end portion of said bracket arm being adapted for securement to a wall surface.

4,374,499

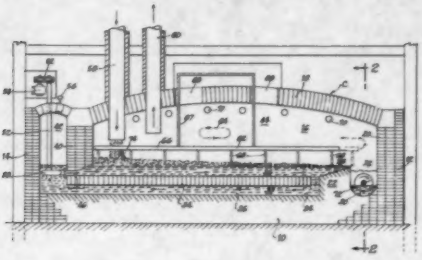
TREATMENT DURING TRANSPORT OF SOLID WASTE

Wayne M. Fassell, Newport Beach, Calif., assignor to Board of Control of Michigan Technological University, Houghton, Mich.

Continuation of Ser. No. 772,302, Feb. 25, 1977, abandoned, which is a continuation of Ser. No. 581,902, May 29, 1975, abandoned. This application Nov. 3, 1978, Ser. No. 957,439

Int. Cl.³ C22B 7/00

U.S. Cl. 110—243 6 Claims



1. A device for treatment in transport of solid waste comprising an elongate enclosure, a trough extending lengthwise in the bottom portion of said enclosure for containing a bath of molten lead, means for imparting linear flow of the molten lead along the top side of the bath from a head end portion to a foot end portion of the bath, heating means for maintaining the lead in the bath in the molten state, inlet means overlying the head end portion of the bath of molten lead for the introduction of solid waste onto the underlying surface of the bath, outlet means communicating with a portion of the area within the enclosure above the bath for exhausting gases and vapors generated upon pyrolysis of organic material in the solid waste during movement with the bath from the head end portion to the foot end portion, and means for removal of residual solids from the bath at the foot end portion, and which includes a separating wall adjacent the head end portion of the bath, with the wall extending downwardly from the top of the enclosure to a level below the level of molten lead in the bath to subdivide the enclosure into a heating chamber and a pyrolysis chamber and to form a weir at the head end portion of the bath, said molten lead being exposed directly in both of said heating and pyrolysis chambers and said chambers being isolated one from the other except through said molten lead, said heating means being exposed to the interior of said heating chamber for introducing heat to said chamber and directly to the molten lead therein, and said means for imparting linear flow to the molten lead comprising a pumping means for displacement of the molten lead from the heating chamber through the weir into the pyrolysis chamber.

4,374,500

SEED PLANTER DEPTH CONTROL

Lawerence D. Westerfield, Romeoville, Ill., assignor to International Harvester Co., Chicago, Ill.

Filed May 20, 1981, Ser. No. 265,515

Int. Cl.³ A01C 5/00

U.S. Cl. 111—85 5 Claims

1. A seed planter depth control comprising:

(a) a frame, said frame being adapted to be attached for towing to a mobile power source;

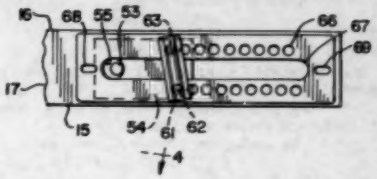
(b) a pair of opposed, furrow forming disks rotatably mounted on said frame with the disks substantially contacting each other at the approximate point of entry into the soil and diverging apart rearwardly and upwardly relative to the direction of travel;

(c) a seed tube supported from said frame rearward of said furrow forming disks, one end of said tube extending toward the furrow and the other end being adapted for connection to a seed dispenser;

(d) a pair of gauge wheels means individually mounted on said frame for regulating furrow depth, each means including a support pivotally mounted on said frame, a wheel located generally adjacent an outer surface of a disk and rotatably mounted on said support on an axis rearward of the disk axis of rotation;

(e) furrow closing means mounted on said frame rearwardly of said disks and gauge wheels;

(f) gauge wheel adjustment means, including a lever pivotally mounted on said frame and having one end adapted to engage said wheel supports, a slide for moving the other



end of said lever, a plate having a plurality of equally spaced holes, and a handle resiliently mounted on said slide and having structure to engage said holes to set and maintain desired furrow depth; and

(g) adjustment means for movably mounting said plate on said frame, said means including a longitudinally spaced and substantially aligned pair of elongated holes in said plate and complementary fasteners to selectively secure said plate to said frame whereby when said disks and wheels are contacting a level surface and said plate is moved until a zero position hole is engaged by said handle structure, said plate can be fixed to said frame wherein accurate furrow depth control is achieved.

4,374,501

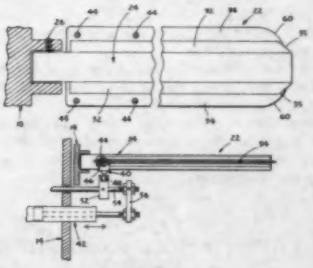
GARMENT TOE CLOSING ASSEMBLY

Cecil R. Bell, Jr.; George D. Nakhle, both of Pinnacle, and A. Russell Edward., Winston-Salem, all of N.C., assignors to Consolidated Foods Corporation, Winston-Salem, N.C.

Filed Jul. 18, 1980, Ser. No. 170,022

Int. Cl.³ D05B 21/00

U.S. Cl. 112—121.12 8 Claims



1. In an apparatus having clamping and sewing instrumentalities for closing an end portion of a tubular hosiery blank, and an indexable turret assembly including a plurality of displaceable blank support assemblies for sequentially positioning the support assemblies at a series of work stations, each said support assembly including an elongated tubular unit secured to the turret assembly, blade means, and actuator means for selectively displacing said blade means, said tubular unit including core means and means encompassing said core means, said

encompassing means including opposed fins, said fins defining slots therein for slidably supporting and guiding said blade means.

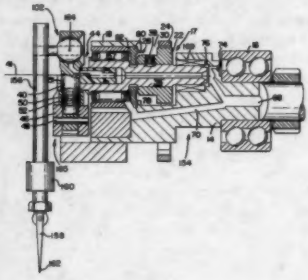
7. In an assembly for supporting or tubular hosiery blank including an elongated tubular unit for supporting and guiding of plurality of blades as the blades are selectively reciprocated to present a blank end portion to a prescribed location for subsequent sewing of the blank end portion, said tubular unit including an elongated, hollow cylindrical portion having diametrically opposed fins integral therewith, each of said fins defining a radial slot extending longitudinally of said cylindrical portion for slidably receiving a blade therein, said cylindrical portion and said fins being of molded, resin construction, each fin being tapered and reduced in thickness as it extends radially from said cylindrical portion.

4,374,502

MECHANISM GENERATING HELICAL MOTION

George M. Toman, Chicago; Thomas J. Bock, Schaumburg, and Chandrakant Bhatia, Buffalo Grove, all of Ill., assignors to Union Special Corporation, Chicago, Ill.

Filed May 9, 1978, Ser. No. 904,206
Int. Cl.[3] D05B 57/34
U.S. Cl. 112—162 7 Claims



1. A sewing machine having a mechanism for converting rotary motion into helical motion comprising:

a Cardan gear means having an output means sweeping out a straight line, said output means having an output center point;

a lever means carrying a work performing instrumentality and sweeping out a straight line;

a bearing means constraining said lever means whereby it is free to move only along and around its major axis;

a force transfer means capable of transferring translational and rotation force from said output means to said lever means and having the same output center point as said output means; and

a means operatively associated with said Cardan gear means whereby the straight line swept out by said output means will be skewed with respect to the straight line swept out by the lever means.

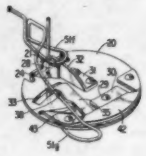
4,374,503

CHAIN STITCH DEVICE FOR LOCK STITCH SEWING MACHINES

Stanley J. Ketterer, Jamesburg, N.J., assignor to The Singer Company, Stamford, Conn.

Filed Mar. 27, 1981, Ser. No. 248,086
Int. Cl.[3] D05B 1/14, 57/04
U.S. Cl. 112—163 7 Claims

1. A chain stitch sewing machine comprising a work penetrating thread carrying needle, a circularly moving loop taker including a beak for seizing and manipulating loops of thread from said needle, a work feeding means for advancing work between needle penetrations, actuating mechanism for operating said needle, loop taker and work feeding means cooperatively, a thread loop retaining means for retaining loops of thread seized by said beak from said needle and supporting said loops of thread in a position for penetration by said thread carrying needle, thread loop shedding means operative to effect release of a thread loop from said thread loop retaining



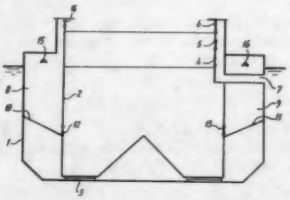
means, and means responsive solely to the action of a subsequently seized thread loop as it is being manipulated by said loop taker beak and before it is retained by said thread loop retaining means for operating said thread loop shedding means to release a previously retained thread loop.

4,374,504

SUCTION DREDGER BARGE

Rudolf H. Loevendie, Alblasserdam, Netherlands, assignor to IHC Holland N.V., Papendrecht, Netherlands

Filed Apr. 14, 1981, Ser. No. 254,204
Claims priority, application Netherlands, Apr. 14, 1980, 8002154
Int. Cl.[3] B63B 3/38, 41/00
U.S. Cl. 114—37 2 Claims

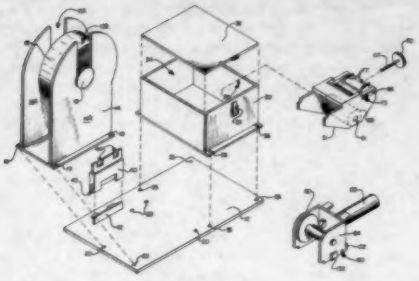


1. A suction dredger having a central hold and air chambers located on both sides of the hold, said central hold having an overflow toward the outside of the hull and an overflow toward said air chambers, control valves for opening and closing the latter overflow, said air chambers having bottom walls that incline downwardly toward the central hold, discharge valves between the air chambers and the central hold at the bottom of the air chambers, and means to unload said central hold.

4,374,505
PORTABLE GLUE APPLICATOR

Ned B. Theriot, Rte. 3, Box 544, Baker, La. 70714

Filed Apr. 27, 1981, Ser. No. 257,530
Int. Cl.³ B05C 11/00
U.S. Cl. 118—40 21 Claims



1. A device for applying liquid to a continuous web of material comprising:

a. a frame;

b. a supply spool having a wound web of material thereon and mounted during operation on said frame;

c. a reservoir at least partially filled during operation with a liquid to be applied to said material and supported adjacent said spool by said frame;

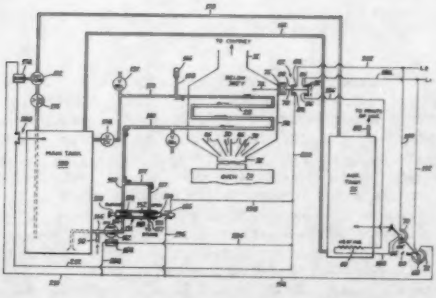
d. a removable guide roller means disposed within said reservoir during operation for supporting guiding a portion of said web of material guided into said reservoir for coating, said roller means being a removable assembly comprising at least a roller support frame, and a roller rotatably movable thereon; and

e. guided dispensing reel means removably attachable to said web after said web is coated, for advancing said web from said supply reel to said reservoir for coating and thence onto said dispensing reel means.

4,374,506
AUTOMATIC FLUE GAS HEAT RECOVERY SYSTEM

Daniel A. Whalen, 5031 Mont Clair #A, Peoria Heights, Ill. 61614

Filed Sep. 18, 1981, Ser. No. 303,533
Int. Cl.³ F22B 33/00; F24C 13/00
U.S. Cl. 122—20 B 13 Claims



1. In an automatic flue gas heat recovery system:

a heat exchanger housing adapted to be positioned in a flue gas flow from a heat source;

heat exchanger tube means in said housing;

hot water storage tank means;

water inlet and outlet conduits connected to the hot water storage tank means;

conduit means including at least two conduits connecting the tank means with the heat exchanger tube means to provide a closed loop for circulating water therebetween;

motor driven pump means in said conduit means effective when activated to circulate water in the closed loop;

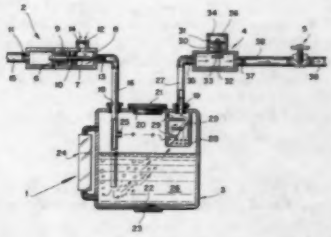
drain valve means being activatable between opened and closed conditions and connected to said conduit means in position to drain said heat exchanger tube means when opened; and

means for de-activating said pump means and opening said drain valve means in response to a temperature in said storage tank means exceeding a predetermined value.

4,374,507
DEVICE FOR INTRODUCING ALCOHOL INTO GASOLINE ENGINE AS SUPPLEMENTAL FUEL

Alfredo C. Protacio, Project Sta. Barbara Sangley Point, Cavite City, Philippines; Ramon V. Navarro, Cavite City, Philippines; Eliseo M. Rio, Jr., Cavite City, Philippines; Antonio D. Aloste, Cavite City, Philippines, and Felix J. Pascual, Cavite City, Philippines, assignors to Alfredo C. Protacio, Cavite City, Philippines

Filed Jun. 12, 1980, Ser. No. 158,695
Claims priority, application Philippines, Jun. 18, 1979, 22665
Int. Cl.³ F02B 75/12
U.S. Cl. 123—1 A 8 Claims



1. A device for introducing alcohol vapors together with gasolene vapors into the combustion chamber of an engine comprising:

a vapor control valve wherein the control element is connected to the intake manifold of the internal combustion engine having an air intake opening and an air output opening;

an air tight tank adapted to hold a volatile liquid such as alcohol and the like having a liquid inlet and a liquid outlet port and having an air inlet pipe connected to the air output opening of the vapor control valve, where the air inlet pipe has an opened end that allows the bubbling of air through the liquid alcohol and a by-pass opening that facilitates the flow of air on top of the volatile liquid and having an air outlet pipe whose inlet end is terminated by a cylindrical container with multiple holes and inter-layered inside with a plurality of baffle plates; and

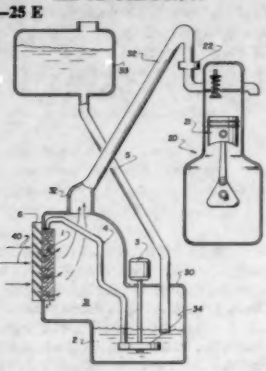
a deceleration air feed valve having its input connected to the air outlet pipe of the air tight tank and having an air inlet port and providing a check valve for supplying air to the engine upon reaching of a predetermined suction pressure from the engine's manifold in order to avoid generation of a vacuum inside the alcohol containing air tight tank.

4,374,508

FUEL SAVER SYSTEM FOR INTERNAL COMBUSTION ENGINES

Blas D. Pena, Monterrey, N.L., Mexico

Filed Jun. 13, 1980, Ser. No. 159,163
Int. Cl.³ F02M 25/04
U.S. Cl. 123—25 E **3 Claims**



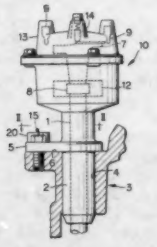
1. A device for improving the fuel economy of an internal combustion engine of the type having a carburetor for mixing a liquid fuel with combustion air comprising, a housing having a chamber, filter means for passing combustion air into said chamber, said housing including a reservoir section for containing a mixture of ether, alcohol and water in a ratio of about 1 part ether to 10 parts alcohol to 1000 parts water, pump means communicating with said reservoir section for passing the mixture to said filter to saturate combustion air passing therethrough, and a conduit connecting said chamber to the carburetor for passing the saturated air to the carburetor.

4,374,509

FIXTURE DEVICE FOR A DISTRIBUTOR

Takakazu Kawabata, and Seigo Hino, both of Toyota, Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha and Nippon Denso Company Limited, both of Kariya, Japan

Filed May 7, 1980, Ser. No. 147,619
Claims priority, application Japan, Jun. 23, 1979, 54-86181[U]
Int. Cl.³ F02P 5/04
U.S. Cl. 123—146.5 A **15 Claims**



1. In a distributor for an internal combustion engine, a device including a tool for enclosing a head of a fixing bolt tightened at a selected position to hold a distributor flange in place, and engageable with said tool for providing access to said head, wherein said device comprises:

an outer cup member including a side wall, a first open end portion and a first substantially closed end portion including a bottom wall having a central bolt hole formed therethrough and fixed to said flange by said fixing bolt inserted through said bolt hole, said side wall having at least a first and second circumferentially spaced elastically yieldable tongue protruding inwardly toward said closed end; and

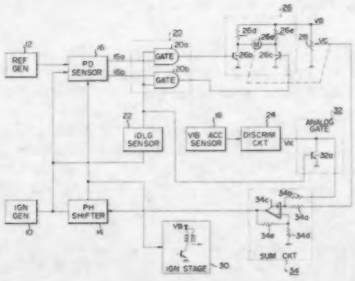
an inverted inner cut member including a side wall, a second open end portion and a second closed end portion, and received within said outer cup member with said second closed end portion located adjacent a side portion of said first open end portion of said outer cup member such that said inner cup member encases therein said head of said fixing bolt, said side wall of said inner cup member having at least one tongue-mating portion engaging each of said first and second tongue upon said inner cup member being forced into said outer cup member such that an outer surface of said side wall of said inner cup member and an inner surface of said side wall of said outer cup member define an annular clearance therebetween selected so as to permit engagement of said first and second tongue with said tongue-mating portion through elasticity of said tongue-mating portion, said annular clearance accommodating an annular portion of said tool adapted to release said engagement and remove said inner cup member by forcing said annular portion into said annular clearance, wherein said inner cup member upon being locked to said outer cup member through said engagement forms a detent-type bolt-head enclosure, such that access to said head is normally prevented unless said inner cup member is removed with said tool.

4,374,510

IGNITION TIMING CORRECTING SYSTEM FOR INTERNAL COMBUSTION ENGINE

Satoshi Komurasaki; Atsushi Ueda, and Tsuneo Yamane, all of Himeji, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 31, 1981, Ser. No. 249,458
Claims priority, application Japan, Apr. 3, 1980, 55/44406
Int. Cl.³ F02D 5/04
U.S. Cl. 123—418 **4 Claims**



1. An ignition time correcting system for an internal combustion engine comprising a reference generator means for generating a reference signal at a reference angular position of the rotation of an internal combustion engine, an ignition generator means for generating a ignition signal at an angular position of the rotation of the engine leading that for said reference signal, said ignition signal having a predetermined advance characteristic, a phase shifter means connected to said ignition generator means to control a retardation of said ignition signal in response to a control input applied thereto, an ignition means connected to said phase shifter means to generate an ignition voltage with an output from said phase shifter means, a control signal generator means for generating a control signal for determining the retardation of said ignition signal provided by said phase shifter means, a control means for controlling a magnitude of said control signal in response to the phase relationship between said reference signal and said output from

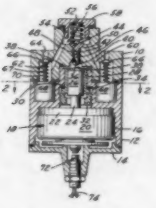
said phase shifter means so as to impart to said output from said phase shifter means a predetermined phase relative to said reference signal in a predetermined mode of operation of the internal combustion engine, a knocking sensor means for sensing a knocking status of the internal combustion engine, and a correction means connected said knocking sensor means to control a magnitude of said control input to said phase shifter means.

4,374,511

FUEL INJECTION PUMP WITH DISTRIBUTOR TYPE FUEL CONTROL

Michael M. Schechter, Southfield, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Dec. 22, 1980, Ser. No. 219,108
Int. Cl.³ F02M 39/00
U.S. Cl. 123—448 **9 Claims**



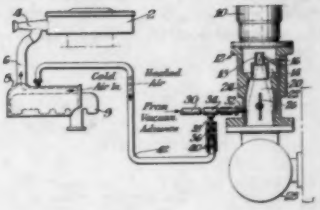
1. An automotive type internal combustion engine fuel injection pump including a housing having a central bore, a plunger reciprocably movable within the bore adjacent one end, a spring closed delivery control valve normally blocking the other end of the bore, a source of supply fuel under a first low pressure connected to the bore space between the plunger and valve for filling the space upon movement of the plunger away from the valve in a fuel intake stroke and for pressurization of the fuel to a level above the delivery valve spring force upon movement of the plunger towards the valve in a pumping stroke, a plurality of fuel outlet lines corresponding in number to the number of engine cylinders connected at one end to the bore downstream of the valve and connected at their other ends each to a separate engine cylinder, each of the outlet lines containing a fuel outlet valve normally closed to block fuel flow to the cylinders, each of the outlet valves having a solenoid connected thereto for moving the outlet valve to an open position upon energization of its solenoid, the solenoids being selectively energized one at a time to assure the injection of fuel into each cylinder on a one at a time schedule, force means to reciprocate the plunger, and stroke control means to variably control the stroke of the plunger to vary the duration and magnitude of injection of fuel to each of the outlet lines, the force means comprising a main solenoid having an armature connected to the plunger, the control means including electrical means to vary the voltage impulses to the main solenoid as a function of varying engine operating conditions to vary the duration and magnitude of pumping fuel by the plunger to agree with a predetermined schedule, the control means also energizing the fuel outlet line solenoids in sequence one at a time while deenergizing the remaining fuel outlet line solenoids to connect the output from the plunger past a different outlet valve upon each successive pumping stroke of the plunger.

4,374,512

INTERNAL COMBUSTION ENGINE HAVING PROVISIONS FOR HEATING THE FUEL-AIR MIXTURE PRIOR TO INJECTION INTO THE CYLINDERS

Victor Starun, 3111 Madison St., Wilmington, Del. 19802

Filed Dec. 23, 1980, Ser. No. 219,531
Int. Cl.³ F02M 23/04, 31/00
U.S. Cl. 123—556 **3 Claims**



1. An attachment to an internal combustion engine having a carburetor means for forming a fuel-air mixture and a butterfly valve, an inlet manifold means for directing the fuel air mixture to cylinders for combustion of the fuel-air mixture and exhaust means for conveying hot combustion gases away from the cylinders, the improvement consisting of a means of injecting a metered quantity of air heated to a temperature of at least 150° F. to the carburetor means in a region in the venturi zone, said region extending from the butterfly valve to a point two inches below the butterfly valve comprising:

(a) a heater means for heating air to a temperature of at least 150° F.;

(b) first tube means for conveying said heated air to the carburetor means in said region in the venturi zone from the butterfly valve to a point two inches below the butterfly valve; and

(c) second tube means comprising either a PCV or a vacuum advance line connecting to the first tube means upstream of the point where the first tube means joins the venturi zone;

(d) a restrictor for metering a quantity of air flowing therethrough positioned in the second tube means comprising a tube with an internal orifice for the passage of heated air from a source of heated air, said tube having an upstream and a downstream end, said restrictor being positioned in said tube means at a pointdownstream of the heater and upstream of the carburetor means, said internal orifice having a diameter of 0.047 to 0.057 inch and said upstream and downstream ends of the restrictor being tapered inwardly to produce a jet action in the flow of heated air thereby causing said heated air to be injected into the carburetor means.

4,374,513

DRESSING APPARATUS FOR CUP-TYPE ABRASIVE WHEELS AS USED FOR GRINDING SPIRAL BEVEL GEARWHEELS

Dieter Wiener, Tulpenstr. 9, D-7505 Ettlingen-Bruchhausen, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 104,071, Dec. 17, 1979, and a continuation of Ser. No. 904,883, May 11, 1978, abandoned. This application Oct. 23, 1980, Ser. No. 200,001
Claims priority, application Fed. Rep. of Germany, Aug. 4, 1978, 2834149
Int. Cl.³ B24B 53/14
U.S. Cl. 125—11 CD **14 Claims**

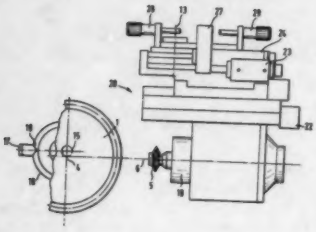
1. A dressing apparatus for dressing of a cup-type, abrasive, spiral bevel gear-grinding wheel having a concave conical grinding flank, a convex conical grinding flank and an axis of turning, comprising:

(A) means for holding said cup-type grinding wheel parallel to its axis of turning;

(B) a diamond abrasive dressing roller having an axis of symmetry and two conical dressing surfaces, one of which has a larger cone angle than the other;

(C) a dressing tool head for supporting said dressing roller arrangement;

(D) means for producing a first plunge cutting motion of said tool head, from a first position thereof, toward a said cup-type grinding wheel held by said means for holding, in a manner causing the conical dressing surface of said dressing roller having the larger cone angle to dress said



convex conical grinding flank of the grinding wheel and for producing a second plunge cutting motion of said tool head, from a second position thereof, toward said cup-type grinding wheel, in a manner causing the conical dressing surface of the dressing roller having the lesser cone angle to dress said concave conical grinding flank of the grinding wheel; and

(E) means for shifting said dressing tool head from said first position thereof to said second position thereof in a manner rocking said dressing roller about an axis at an angle relative to the axis of turning of said grinding wheel and the axis of symmetry of the dressing roller.

4,374,514

FIREPLACE HEATER STOVE

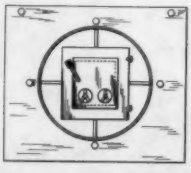
Harold W. Pierce, Ellicott City, Md.

Continuation-in-part of Ser. No. 59,658, Jul. 23, 1979, Pat. No. 4,320,741. This application Mar. 19, 1982, Ser. No. 360,076

The portion of the term of this patent subsequent to Oct. 28, 1997, has been disclaimed.

Int. Cl.³ F24C *1/14*

U.S. Cl. 126—123 **7 Claims**



1. A heater stove which fits into a fireplace, the heater stove comprising:

a cylindrical firebox having (a) a front face, a back face, and a side wall, with a first closed-curve cross-section, extending between the front face and the back face and (b) an axis directed into the fireplace when the heater stove is within the fireplace;

an outer cylindrical shell having a side wall with a second closed-curve cross-section and a back wall, the shell surrounding and being spaced apart from the back face and the side wall of the firebox, the side wall of the shell and the side wall of the firebox having a gap therebetween, the gap including an opening at the front of the stove; and

means for angularly dividing the gap proximate the opening into a plurality of regions which extend a short length in the axial direction between the firebox side wall and the shell side wall, the regions including at least on lower region into which unheated air is drawn and at least one upper region from which heated air exits, air drawn through the at least one lower region (a) mixing with air flowing in other of the regions, (b) being heated by the firebox, and (c) then exiting through at least one of the at least one upper regions, air within the gap being heated by essentially the entire outer peripheral surface of the firebox.

4,374,515

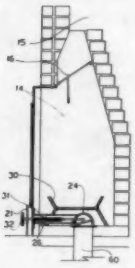
FIREPLACE AIR DISTRIBUTION SYSTEM

Robert Conrad, P.O. Box 1004, Cedar Ridge, Calif. 95924

Filed Mar. 24, 1980, Ser. No. 133,460

Int. Cl.³ F24B *13/02*

U.S. Cl. 126—143 **4 Claims**



1. A fireplace combustion air assembly comprising an intake damper adapted to fit the ash pit opening and replace an ash pit door of a fireplace:

means mounting said intake damper for pivotable movement between a closed and open position and partial open positions therebetween;

means defining a chamber positioned over said damper with sufficient clearance to allow pivotable movement of said damper;

said chamber including at least one opening therein to allow combustion air to enter the firebox of a fireplace therethrough;

manual control means coupled to said intake damper for manually changing the position of said intake damper to control the quantity of combustion air introduced into said firebox via the ash pit opening; and

including thermostatic control means extending into said firebox and coupled to said intake damper for controlling the extent of opening of said intake damper as a function of the temperature within the firebox.

4,374,516

PLANAR DISC MAGNETIC ELECTRODE

William H. Harrison, 23341 Burbank Blvd., Woodland Hills, Calif. 91367

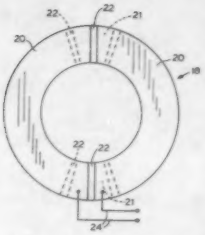
Continuation-in-part of Ser. No. 97,685, Nov. 26, 1979, abandoned. This application Feb. 23, 1981, Ser. No. 236,849

Int. Cl.³ A61N *1/40*

U.S. Cl. 128—1.3 **4 Claims**

1. In an electrode for use in the treatment of animal tissue by hyperthermia comprising electrically conductive material disposed to form a single-turn self-resonant loop including means for coupling to a supply of medically assigned radio frequency energy, the improvement comprising:

the electrically conductive material comprising a plurality of planar members being shaped in the form of partial annular disk segments, said members being disposed in overlapping spaced relationship with a dielectric material disposed between overlapping portions to form an annular disk electrodes which is self-resonant at the medical frequency.

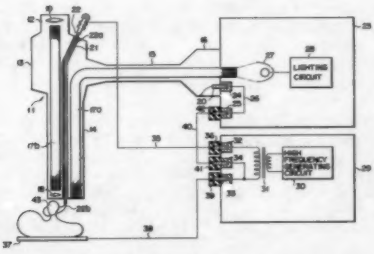


4,374,517

ENDOSCOPE TYPE HIGH FREQUENCY SURGICAL APPARATUS

Toshihiko Hagiwara, Hino, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Jun. 3, 1981, Ser. No. 269,875
Claims priority, application Japan, Jun. 10, 1980, 55-79870[U]
Int. Cl.³ A61B *1/06*
U.S. Cl. 128—6 **4 Claims**



1. An endoscope type high frequency surgical apparatus which comprises:

an endoscope provided with a forceps channel, connector, metal section and high frequency current feedback contact which is mounted on the connector in electrical connection to the metal section;

a light supply unit to which the endoscope connector is detachably fitted, and which is provided with a light source and a high frequency current feedback terminal detachably connected to the high frequency current feedback contact in accordance with the connection and removal of said endoscope connector;

a high frequency powder supply source which generates high frequency surgical energy and is provided with an active output terminal and patient output terminal;

a diathermic snare means inserted into the forceps channel of the endoscope in contact with the active terminal;

patient electrode means connected to the patient output terminal; and

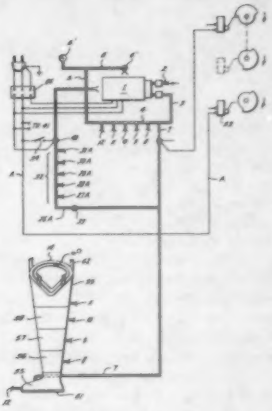
high frequency current feedback means for electrically connecting the feedback terminal of the light supply unit to the paient output terminal of the high frequency power supply source.

4,374,518

ELECTRONIC DEVICE FOR PNEUMOMASSAGE TO REDUCE LYMPHEDEMA

Raul Villanueva, 4102 Mischire, Houston, Tex. 77035

Filed Oct. 9, 1980, Ser. No. 195,515
Int. Cl.³ A61H *7/00*
U.S. Cl. 128—64 **3 Claims**



1. A device for pneumomassage of the limb of a patient, an outer boot having a series of compartments, the most distal of which conforms to the contours of a human foot with a rigid sole, an inner boot having a single compartment, both of said boots extending up to the hip girdle, means for anchoring the outer boot tightly about the body of the user to prevent longitudinal movement and rolling of the top of the boots, means for successively inflating and simultaneously deflating said compartments of the inner and outer boots in a rythmic, preselected cycle, means for maintaining the pressure for an indefinite period of time and for selectively releasing the pressure at any time during the cycle, said means for inflating said compartments of the boot comprises an air compressor with a thermally protected motor, a first manifold supplied with air from said compressor and maintained at a preselected pressure, electronically controlled solonoid valves, conduits leading from said manifold and terminating in said valves, a discharge manifold, and a second manifold of inflating conduits, conduits leading from said discharge manifold, check valves in said conduits, said conduits extending from said check valves and connected into the inflating conduits forming the second manifold, said solonoid valves in said inflating conduits adapted to allow the air to flow from the compressor to the boot compartments and said check valves adapted to maintain equal pressure within said conduits and manifolds, said check valves adapted to maintain the pressure within each individual compartment, a solonoid check valve in said discharge manifold and means for opening said solonoid valve leading from the discharge manifold and relieving the pressure within the boot.

4,374,519

SPINAL MASSAGE DEVICE

Amos K. Stauft, 23869 Van Born Rd., Taylor, Mich. 48180

Filed Nov. 17, 1980, Ser. No. 207,122
Int. Cl.³ A61H *15/00*
U.S. Cl. 128—57 **4 Claims**

1. A spinal massage device comprising:

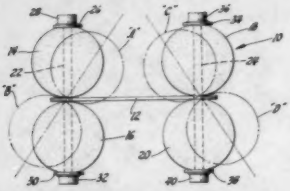
an elongated linking plate having a first end and a second end;

a first resilient member and a second resilient member mounted on opposite faces of the first end of the linking plate, and means connecting the first resilient member and

the second resilient member such that they are disposed to be rotated together as well as with respect to one another;

a third resilient member and a fourth resilient member mounted adjacent opposite faces of the second end of the linking plate, and means connecting the third resilient and the fourth resilient member such that they are disposed to be rotated together, as well as with respect to one another;

the first resilient member and the third resilient member



being mounted on the same side of the linking plate so as to be movable toward one another as the second resilient member and the fourth resilient member are moved away from one another; and

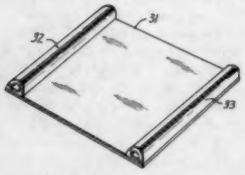
said first, second, third, and fourth resilient members each comprise resilient balls of equal diameter and in which the linking plate has a width less than the diameter of said balls whereby the user can roll his spine on the balls as they are rolled along a supporting surface.

4,374,520

SYSTEM AND METHOD FOR BANDAGING A PATIENT

Frederic Grossmann, Lake Forest, Ill., and Larry A. Sims, Hermosa Beach, Calif., assignors to American Hospital Supply Corporation, Evanston, Ill.

Filed Sep. 11, 1980, Ser. No. 186,352
Int. Cl.³ A61F *13/00*
U.S. Cl. 128—132 D **29 Claims**



1. A system for bandaging a patient comprising:

a flexible bandage having a backing with an adhesive on a surface thereof for applying to a patient; and

a first and second handle means which are substantially stiffer than the bandage and are reversibly attachable to opposite edge areas thereof for maintaining said bandage in a generally flat configuration and for controlling wrinkling during handling and application of the bandage to the patient when attached thereto;

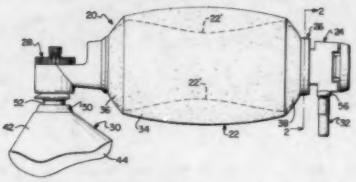
whereby the bandage may resume its flexible nature after application to the patient and removal of the first and second handle means, so as not to interfere with the flexible functioning of the bandage on the patient's anatomy.

4,374,521

SQUEEZE BAG TYPE RESUSCITATOR APPARATUS

Thomas W. Nelson, Lenexa, Kans., and Dennis L. Roehl, Kansas City, Mo., assignors to Puritan-Bennett Corporation, Kansas City, Mo.

Filed Sep. 12, 1980, Ser. No. 186,643
Int. Cl.³ A61M *16/00*
U.S. Cl. 128—205.13 **13 Claims**



1. In resuscitator apparatus:

a manually distortable resilient, hollow squeeze bag assembly having a bag chamber therewithin whose volume varies with distortion thereof,

said bag assembly being provided with a pair of separate openings respectively adjacent opposite extremities thereof and in communication with said bag chamber;

a non-rebreathing valve assembly mounted on said bag assembly adjacent one of said extremities of the latter and having a first fluid port in communication with said bag chamber through one of said bag openings and a second fluid port;

a patient interfacing assembly in communication with said second port of said non-rebreathing valve assembly; and

a demand type oxygen supply valve assembly mounted on said bag assembly adjacent the other of said extremities of the latter and having an oxygen inlet adapted for connection with a source of oxygen under pressure, and an oxygen outlet arranged to communicate with said bag chamber through the other of said bag openings, said supply valve assembly including

housing structure having a hollow interior, a fluid inlet port adapted for coupling with a source of oxygen under pressure, a fluid outlet port adapted for communicating with an outlet chamber subject to fluid pressure variation therewithin in response to the withdrawal of fluid therefrom, and first and second atmospheric vent ports for communicating with the exterior of said housing structure;

means including a partition and a pair of differential pressure responsive diaphragms dividing the interior of said housing structure into a plurality of internal chambers,

one of said diaphragms being between the first and second of said internal chambers,

said partition being between the second and third of said internal chambers,

the other of said diaphragms being between the third and fourth of said internal chambers,

said inlet port being in continuous communication with said fourth internal chamber;

first valve means including a valve member carried by said one diaphragm and a valve passage through said partition for selectively placing said second internal chamber in fluid communication with said third internal chamber;

second valve means including a valve member carried by the other of said diaphragms and a valve passage through said housing structure for selectively placing said fourth internal chamber in fluid communication with said outlet chamber;

a fluid passage within said housing structure for placing said first internal chamber in fluid communication with said outlet chamber;

a fluid passage within said housing structure for placing said second internal chamber in fluid communication with said first vent port;

a fluid passage within said housing structure for placing said outlet chamber in fluid communication with said second vent port; and

differential pressure responsive valve means oppositely communicating with said fourth internal chamber and said outlet chamber, also oppositely communicating with said fourth internal chamber and said second vent port, responsive to a positive pressure of at least a predetermined level within said fourth internal chamber for normally closing said passage between said outlet chamber and said second vent port, and responsive to a pressure of less than said predetermined level within said fourth internal chamber for opening said passage between said outlet chamber and said second vent port.

4,374,522

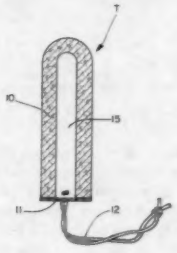
TAMPON WITH CENTRAL RESERVOIR

Howard Olevsky, Appleton, WI, assignor to Kimberly-Clark Corporation, Neenah, Wis.

Filed Mar. 16, 1981, Ser. No. 244,070

Int. Cl.³ A61F *13/20*

U.S. Cl. 128—285 **5 Claims**



1. A tampon comprising a compressed bullet-shaped absorbent pledget having a tapering leading edge, a hollow central core, said pledget in fluid conductive contact with said core, a fluid impermeable layer attached to the base of the pledget to seal the central core area, and a withdrawal means attached to said impermeable layer.

4,374,523

OCCLUSION RING APPLICATOR

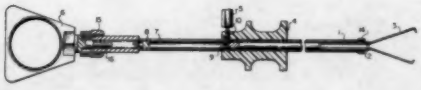
In B. Yoon, 2213 Forest Ridge Rd., Timonium, Md. 21093

Continuation-in-part of Ser. No. 518,617, Oct. 29, 1974, Pat. No. 3,989,049. This application Aug. 15, 1975, Ser. No. 605,217

The portion of the term of this patent subsequent to Mar. 11, 1992, has been disclaimed.

Int. Cl.³ A61B *17/12, 1/06*

U.S. Cl. 128—326 **55 Claims**



1. A ring applicator device for use in applying an elastic occluding ring to an anatomical tubular structure which comprises an inner cylinder and an outer cylinder, said inner cylinder being slidably disposed within said outer cylinder, forceps means slidably disposed within said inner cylinder and operating slide means operatively associated with the forceps means and the inner and outer cylinders for distally displacing the forceps means relative to the inner cylinder and the forceps means and the inner cylinder relative to the outer cylinder as the result of a single continuous movement of said operating slide means toward the distal end of the ring applicator.

4,374,524

ELECTROMEDICAL APPARATUS FOR INTERFERENCE CURRENT TREATMENT

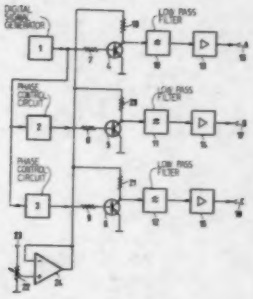
Karl Hudek, deceased, late of Erlangen, Fed. Rep. of Germany by Amanda Hudek, Gerd Hudek, Kurt Hudek, heirs, and Bernd Kusserow, Erlangen, Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Aug. 4, 1980, Ser. No. 174,853

Claims priority, application Fed. Rep. of Germany, Aug. 3, 1979, 2931638

Int. Cl.³ A61N *1/36*

U.S. Cl. 128—420 A **8 Claims**



1. Electromedical apparatus for interference current treatment comprising at least two current circuits having current circuit output means adapted to be coupled to a patient for the purpose of interference current treatment, generator means activating the current circuits with signal frequencies of timing characteristics for effecting interference current treatment via said current circuit output means, each current circuit having a switching transistor (4, 5, 6) connected with said generator means, the transistors (4, 5, 6) having respective collector circuits for supplying collector voltages to the switching transistors, the signal frequencies from the generator means serving to operate the transistors in a switching mode such that the collector voltage of each transistor successively switches between a zero value and an operating voltage value, common control means connected with all of said collector circuits and comprising a single voltage source (23) and a common control circuit (22, 24) having an adjustable common control element means (22) for controlling the activating voltage supplied to each collector circuit so that all switching transistors (4, 5, 6) are activated on the collector side from said single voltage source (23) via said common control circuit (22, 24), and so that the magnitudes of the collector output signals of all of the switching transistors (4, 5, 6) are synchronously adjustable in dependence upon the setting of the common control element means (22), the common control element means being a potentiometer (22) connected with said single voltage source (23), said common control circuit further comprising an operational amplifier (24) having feedback circuit means providing an output-to-input current path and thereby providing a low-resistance output from said operational amplifier connected with all of said collector circuits, said operational amplifier having an amplifier input means connected with said potentiometer (22), said amplifier input means being connected with said single voltage source (23) under the control of said potentiometer (22), said current circuits further having low pass filters (10, 11, 12) having filter inputs connected with the collectors of said transistors (4, 5, 6) and having filter outputs connected with said current circuit output means for supplying

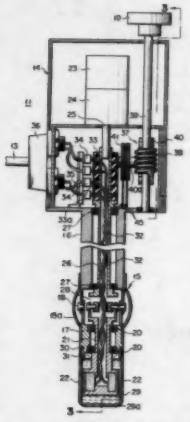
sinusoidal signals in accordance with the frequency and phase of the signal frequencies.

4,374,525

ULTRASONIC DIAGNOSTIC APPARATUS FOR ENDOSCOPE

Kazuo Baba, Hachioji, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Apr. 27, 1981, Ser. No. 258,004
Claims priority, application Japan, Apr. 28, 1980, 55-56868
Int. Cl.³ A61B *10/00*
U.S. Cl. 128—660 **7 Claims**



1. An ultrasonic diagnostic apparatus comprising: an insert section including at least a rigid base tube and a rigid distal tube bendably coupled with each other by at least one hinge means, first and second rotation shafts rotatably disposed in said rigid base and distal tubes respectively and coupled with each other by at least one universal joint, and ultrasonic transducer means including an ultrasonic scanning member disposed at the distal end of said rigid distal tube and attached to the distal end of said second rotation shaft; and

a control section including a rotation driving source for supplying rotation driving force to said first and second rotation shafts and a bending drive means for driving said distal tube to bend.

4,374,526

HEARING FACULTY TESTING AND APPARATUS THEREFOR

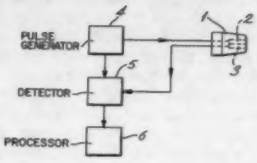
David T. Kemp, Hatfield, England, assignor to National Research Development Corporation, London, England

PCT No. PCT/GB79/00030, § 371 Date Oct. 10, 1979, § 102(e) Date Aug. 14, 1979, PCT Pub. No. WO79/00614, PCT Pub. Date Sep. 6, 1979
PCT Filed Feb. 9, 1979, Ser. No. 230,957
Claims priority, application United Kingdom, Feb. 10, 1978, 5467/78
Int. Cl.³ A61B *5/12*
U.S. Cl. 128—746 **12 Claims**

1. Hearing faculty apparatus comprising:

an aural probe for insertion in the external canal of a subject's ear,

an electroacoustic transducer detector mounted in said probe to generate signals in response to sound pressure waves returned through said canal by reflection within the associated inner ear and reaction elsewhere, and signal separation means connected with said transducer to extract, for retention from said signals, components thereof



representing substantially exclusively only said inner ear reflection.

4,374,527

BODY STIMULATION LEAD

Alfred A. Iversen, Minnetonka, Minn., assignor to Medtronic, Inc., Minneapolis, Minn.

Filed Jul. 19, 1978, Ser. No. 926,100
Int. Cl.³ A61N *1/04*
U.S. Cl. 128—785 **29 Claims**

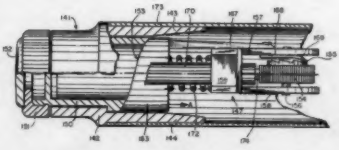
1. In a body stimulator of the type having electrode means, connector means and lead body means extending between said electrode means and connector means, said lead body means including conductor means and conductor means insulating means, the improvement wherein said lead body means comprises means for deforming in compression and elongation in response to extraneous forces imparted to said lead body means to isolate said electrode means therefrom, said deforming means comprising lobe means formed within said lead body means.

4,374,528

ROTARY IGNITION SYSTEM FOR A CATALYTICALLY HEATED CURLING DEVICE

Curt Tittert, Dreieich-Götzenhain, Fed. Rep. of Germany, assignor to Braun Aktiengesellschaft, Kronberg, Fed. Rep. of Germany

Filed Jul. 10, 1981, Ser. No. 282,332
Claims priority, application European Pat. Off., Sep. 30, 1980, 80105922.1
Int. Cl.³ A45D *2/24*
U.S. Cl. 132—37 R **8 Claims**



1. In a curling device having a tubular body defining a heating chamber therein, and having first and second ends and a hair winding portion disposed between the first and second ends and surrounding the heating chamber, heating means including a catalyst means disposed in the heating chamber, a housing member proximate the tubular body including fuel supply means for storing a fuel in a liquid state, and aspirating means coupled between the fuel supply means and the heating

chamber for vaporizing the fuel and for mixing the vaporized fuel with air and for supplying a vaporized fuel/air mixture to said catalyst means, and self-contained ignition means mounted in the first end of the tubular body proximate the catalyst means for initiating oxidation of the vaporized fuel/air mixture in the presence of the catalyst means and including a manually rotatable member having a ring member connected to a lobed member having cam surfaces, mounted in said ignition means and having an axis of rotation substantially parallel or concomitant to the longitudinal axis of the tubular body, a friction wheel mounted in said ignition means having an axis of rotation substantially perpendicular to the longitudinal axis of the tubular body, flint means mounted in said ignition means and including a flint biased against said friction wheel wherein a predetermined rotation of said friction wheel against said flint causes a spark, the improvement comprising:

a one-piece bushing member having a cylindrical portion disposed in a hollow interior of said lobed member and a cam follower portion and a tappet portion having a free end rigidly connected to said cam follower portion, said cam follower portion having matching cam surfaces to said cam surfaces of said lobed member, said free end of said tappet portion cooperating with said friction wheel for translating the rotary motion of said rotatable member to a rotary motion of said friction wheel, wherein said bushing member is displacable along the longitudinal axis of the ignition means.

4,374,529

COIN DISPENSING APPARATUS

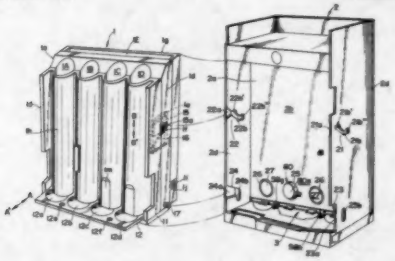
Osamu Kobayashi, and Masanori Tanaka, both of Sakato, Japan, assignors to Kabushiki Kaisha Nippon Coinco, Tokyo, Japan

Filed Sep. 25, 1980, Ser. No. 190,743

Claims priority, application Japan, Oct. 8, 1979, 54-139463[U]; Oct. 8, 1979, 54-139465[U]

Int. Cl.³ G07D *1/02*

U.S. Cl. 133—4 A **9 Claims**



1. A coin dispensing apparatus comprising:

a coin tube assembly made up of a plurality of coin tubes which are juxtaposed as one unit;

a housing in which said coin tube assembly is detachably mounted;

a pay-out slide having holes for receiving and holding the bottom coins in said coin tubes;

a coin base provided below aid pay-out slide, for supporting the coins in said coin tubes; and

dispensing coin selection control means for causing only a predetermined one of the coins which have been taken out by said pay-out slide to drop and the remaining ones to return to positions below the stacks of coins in said coin tubes, respectively.

4,374,530

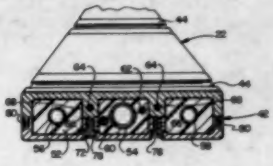
FLEXIBLE PRODUCTION TUBING

John B. Walling, P.O. Box 16266, Fort Worth, Tex. 76133

Filed Feb. 1, 1982, Ser. No. 344,601

Int. Cl.³ F16L *11/08*

U.S. Cl. 138—110 **8 Claims**



1. A composite, flexible tubing assembly for conveying formation fluid out of a well comprising, in combination:

an injection body of high tensile strength, flexible material defining an elongated core;

elongated production tubing embedded in said core; and,

a plurality of striker plate assemblies partially embedded within said core, each striker plate assembly having an exposed face and a groove in said face extending transverse to the longitudinal axis of said core, said plates being axially spaced with respect to each other along the length of said core whereby the grooves of said striker plates can be engaged successively by the teeth of a drive sprocket.

4,374,531

MULTIPLE CASTING HEAD

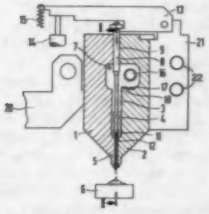
Alfred Heinzl, and Heinz Stadler, both of Munich, Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Nov. 3, 1980, Ser. No. 203,324

Claims priority, application Fed. Rep. of Germany, Nov. 9, 1979, 2945403

Int. Cl.³ B65B *3/14*

U.S. Cl. 141—82 **7 Claims**



1. A multiple casting head comprising:

a housing consisting solely of two separable halves divided by a vertical plane;

a means for maintaining said separable halves of said housing in fluid-tight adjacent relation;

a feed chamber in said housing;

a means for introducing casting compound into said feed chamber;

a plurality of discharge nozzles disposed in a row in said housing in communication with said feed chamber;

a means for introducing compressed air into said feed chamber for discharging said casting compound;

a plurality of valves individually movable to respectively open and close said discharge nozzles said valves and said discharge nozzles being divided by said plane such that when said halves of said housing are separated said valves and the interiors of said discharge nozzles are accessible for cleaning; and

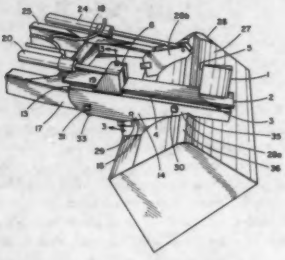
a means associated with each said valve for individually controlling said valve for precisely supplying selected differing amounts of said casting compound to respective containers disposed beneath said discharge nozzles.

4,374,532

WOOD SPLITTING DEVICE

James A. Region, Rte. 2, Box 143BX, Sheridan, Ill. 60551

Filed Apr. 27, 1981, Ser. No. 257,823
Int. Cl.³ B27L *7/00*
U.S. Cl. 144—193 A 20 Claims



1. A log splitting device for connection to a powered machine mounted implement which has at least one powered reciprocating arm to manipulate said implement, such reciprocating arm being disconnectible from said implement, said log splitting device including a mounting frame for connection to said powered machine mounted implement, log splitting means on said mounting frame in alignment with said one powered reciprocating arm when said log splitting device is connected to said powered machine mounted implement, said mounting frame including elongated track means extending along said mounting frame at a location between said log splitting means and said one powered reciprocating arm when said log splitting device is connected to said powered machine mounted implement, a ram head slidingly and captively mounted on said track means for reciprocal movement between a retracted position away from said log splitting means and an extended position toward said log splitting means, said ram head being connected to said one powered reciprocating arm to drive said ram head between said retracted and said extended positions, wherein said powered machine mounted implement is a tractor mounted end loader having a pair of extending lifting arms connected to a bucket for raising and lowering said bucket, said end loader including a pair of hydraulically powered reciprocating arms each positioned in spaced apart relationship with respective ones of said pair of lifting arms and each connected to said bucket to pivot said bucket on said lifting arms between a turned-upright and a turned-over position, said one powered reciprocating arm being one of said pair of hydraulically powered reciprocating arms, and rigid immobilizing connecting means to rigidly connect said mounting frame of said log splitting device to one of said lifting arms and to said bucket to immobilize said bucket and prevent pivoting thereof on said lifting arms when said one reciprocating arm is connected to said ram head of said log splitting device.

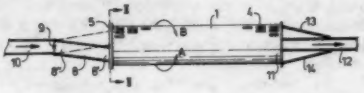
4,374,533

APPARATUS FOR DEBARKING LOGS AND CUT TIMBER

Sven A. Svensson, Myckling, Sweden, assignor to Mo och Domsjo Aktiebolag, Ornskoldsvik, Sweden

Filed Jan. 22, 1981, Ser. No. 227,301
Claims priority, application Sweden, Feb. 5, 1980, 8000917
Int. Cl.³ B21L *1/00*
U.S. Cl. 144—208 B 11 Claims

1. Apparatus for debarking logs and cut timber, comprising a debarking drum rotatable in either direction and having an inlet at one end and an outlet at the other end; a plurality of lifter means shaped and disposed on an interior wall of the drum in a manner to engage and lift logs and cut timber with rotational movement of the drum in either direction; a conveyor feeding logs and cut timber into the interior of the debarking drum; the conveyor being movable between a first



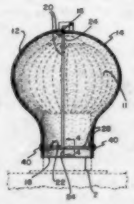
position and a second position with respect to the inlet and the center axis of the debarking drum; and means for driving the drum in one direction when the conveyor occupies the first position, and in the opposite direction when the conveyor occupies the second position, so as to wear the lifter means more evenly.

4,374,534

TURBINE VENTILATOR COVER

Victor H. Jespers, 1001 Silverdale, Wichita, Kans. 67218, and Douglas A. Hillen, 5960 B Mendocino Dr., Dallas, Tex. 75248

Filed Sep. 22, 1980, Ser. No. 188,780
Int. Cl.³ B65D *37/00*
U.S. Cl. 150—52 R 7 Claims



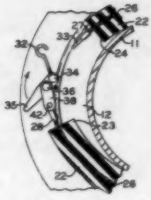
1. A cover for covering a turbine ventilator or the like comprising a cover body having a base; said cover body including a first body member having a first body edge and a first body base edge, and a second body member having a second body edge and a second body base edge; a first body internal seal generally traversing and bound to a portion of the internal surface of said first body in proximity to the periphery of said first body edge; a first body base seal essentially circumscribing and bound to a portion of the internal surface of the base of said first body in general proximity to said first body base edge; a second body base seal similarly circumscribing and similarly bound to a similar portion of the internal surface of the base of said second body as said first body and in general proximity to said second body base edge; said first body member when combining with said second body member to enclose said turbine ventilator or the like to protect same from the weather having said second body edge contacting said first body internal seal, and said first body base seal and said second body base seal joining together to essentially seal the base of the cover body to the base of the turbine ventilator or the like.

4,374,535

WHEEL WELL FILLER

George T. Watts, North Canton, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

Continuation of Ser. No. 618,258, Sep. 30, 1975, abandoned. This application Jan. 18, 1978, Ser. No. 870,367
Int. Cl.³ B60C *17/00*
U.S. Cl. 152—331.6 3 Claims



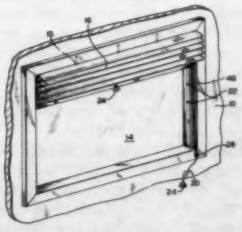
1. A wheel well filler and rim assembly for mounting a pneumatic tire of the type having a U-shaped cross section and bead portions at the edges comprising a generally cylindrical rim having bead seats and an annular wheel well between said bead seats, said bead seats having a greater diameter than said wheel well, a wheel well filler of flexible, resilient material disposed in said well, said filler having a depth not greater than the depth of said well and a length less than the circumference of said well providing a gap in said well between spaced-apart ends of said filler, an inextensible reinforcing member extending circumferentially of said well and being molded in said filler, said reinforcing member having a circumference substantially the same as the circumference of said rim at said well, and a tension-applying over-center latch positioned in said gap and fastened to one of the spaced-apart ends of said reinforcing member and in detachable engagement with the other of said spaced-apart ends to form a circumferentially continuous ring, said wheel well filler and reinforcing member forming a one-piece assembly for mounting in said wheel well with said latch as a unit, said latch having a depth not greater than the depth of said well so that said filler including said latch has a diameter not greater than the diameter of said bead seats, and placing said ring and said reinforcing member under tension whereby said filler is pressed against said rim for application of said over-center latch and retention of said filler in said well without turning relative to said rim during rotation of said assembly.

4,374,536

ENERGY SAVING WINDOW SCREEN GUIDE DEVICE

Sharon L. Becker, R.R. #2, SH 109, Delta, Ohio 43515

Filed Sep. 5, 1980, Ser. No. 184,285
Int. Cl.³ E06B *3/94*
U.S. Cl. 160—84 R 8 Claims



1. In a window opening having frame members defining the opening and containing the marginal edges of a transparent panel and a flexible screen for covering and uncovering the panel, the improvement comprising:

longitudinally extending track means mounted to extend in parallel spaced relation along at least two parallel spaced apart members of the window opening, said track means having longitudinally extending grooves;

guide means being received by the grooves of said track means enabling said guide means to slide along the longitudinal axis of said track means;

longitudinally extending seal means mounted to extend substantially the entire length of said track means, said seal means including a substantially continuous sealing strip positioned on the outer side of said track grooves and said guide means, said sealing strip having an outer marginal edge and an inner marginal edge, the inner marginal edge secured to said track means and the outer marginal edge terminating in spaced parallel relation to said track means; and

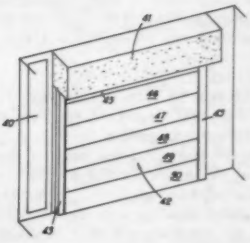
means connecting at least two longitudinally spaced apart edge portions of the screen to respective guide means, said connecting means being spaced inwardly from the associated marginal edge of the screen for effectively causing the associated marginal edge of the screen to extend outwardly past said associated track means and abut against the outer marginal edge of said sealing strip to militate against the flow of air therethrough.

4,374,537

COLLAPSING CLOSURE SYSTEM AND OPERATING MECHANISM

Charles Lindbergh, 10 S. Basilica, Charleston, S.C. 29406

Continuation-in-part of Ser. No. 89,944, Oct. 31, 1979, Pat. No. 4,303,117. This application Sep. 8, 1980, Ser. No. 185,258
Int. Cl.³ E05D *15/26*; E05F *1/04, 11/06*
U.S. Cl. 160—189 25 Claims



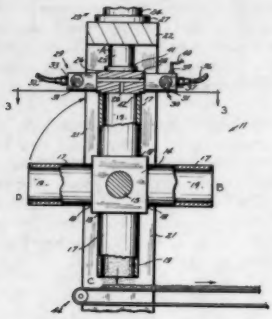
1. In a collapsing closure system, a closure including plural equal width panel sections which are hingedly connected along parallel hinge axes to allow overhead collapse and storage of the closure in a compact form and downward extension thereof, linear and upper diversionary guide track means for said closure, and coacting guide roller means for said closure engaging said linear and diversionary guide track means, said guide roller means including opposite side guide roller pairs for the closure located on the hinge axes of said closure panel sections except for two pairs of the guide rollers of two intermediate panel sections which are displaced in a common direction and unequally from the lower hinge axis of the panel sections carrying said two pairs of guide rollers.

4,374,538

APPARATUS FOR DECORING AND EXPLOSIVE TREATMENT OF MATERIALS

Warren A. Rice, Dexter, Mich., assignor to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed May 16, 1980, Ser. No. 150,606
Int. Cl.³ B22D 29/00
U.S. Cl. 164—401 1 Claim



1. An apparatus for confined explosion decoring of castings comprising:

a machine frame having a pair of upstanding legs;

a web bridging said legs of said frames at a top location thereof so that said frame is in the form of an inverted U;

a rotor block rotatably mounted between said legs;

a plurality of chambers fixed to said rotor block and radially extending therefrom movable in a vertical plane with said block, said chambers rotating on an axis journalled in the legs of said frame and between the legs of said frame;

plural stations radially related to said rotor block including an ignition station at the web having

a closure plate engageable with said chambers, and a linear actuator secured to said web and connected to said closure plate for closing said closure plate against a chamber facing the closure plate;

an unloading station;

a dumping station at a bottom location; and

a loading station, said chambers being open at all of said stations except at said ignition station;

said closure plate and said linear actuator at said ignition station being situated on a radial line through the axis of successively and registrably located chambers and including plural communicating passages therethrough;

valve means selectively opening and closing flow into and out of said passages and into and out of said chambers as successively presented;

an igniter device connectable to said chambers when closed by the closure plate;

conduits to and from said valves for control of flow of combustion gas and oxygen, vacuum, and purge to said chambers as successively presented;

and an index drive driving said rotor block to successive stations;

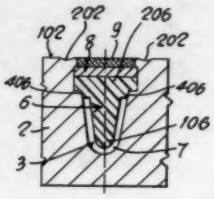
said rotor block being journalled on a horizontal axis through said frame, so that said frame absorbs stresses at said journals as generated by closure of the chamber at the top location by the linear actuator and by explosion stresses in said chambers upon ignition of the combustion gas and oxygen.

4,374,539

PLATE MOLD FOR THE CONTINUOUS CASTING OF METALS

Enzo Colombo, Udine, Italy, assignor to Continua International Continuous Casting S.p.A., Ferrara, Italy

Filed Jun. 18, 1980, Ser. No. 160,545
Claims priority, application Italy, Jun. 22, 1979, 12652 A/79
Int. Cl.³ B22D 11/00
U.S. Cl. 164—443 5 Claims



1. A mold plate of a plate mold used in the continuous casting of metal, comprising a heat conductive plate having an outer surface and an opposite surface substantially exposed to the casting metal, said plate including a groove defined in the outer surface thereof, the groove including a base portion; a thermoresistant plastic insert bar disposed in said groove and being shaped and dimensioned to define a flow passage between the insert bar and an inner surface of the groove for circulating a cooling medium therethrough, said flow passage being of reduced flow section relative to a corresponding section of said groove; closure means encased within the base portion of said groove the base portion being located outwardly from and adjacent in outer surface of said insert bar, said closure means including a closure plate being encased in the base of said groove so as to be recessed within the groove so as to firmly secure said insert bar in said groove; and means for sealing and securing said closure plate to said mold plate, said sealing means including a low melting point alloy filled in a space defined by the recessed area formed by an outer surface of the closure plate and the base portion of the groove.

4,374,540

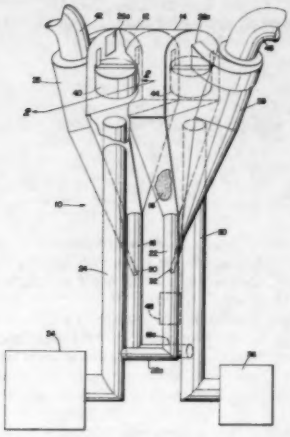
PNEUMATIC TRANSPORT AND HEAT EXCHANGE SYSTEMS

Lester G. Massey, Moreland Hills, Ohio; Lawrence G. Clawson, Dover, and Andrew J. Syska, Marblehead, both of Mass., assignors to Consolidated Natural Gas Service Company, Inc., Pittsburgh, Pa.

Continuation-in-part of Ser. No. 942,677, Sep. 15, 1978, abandoned. This application Sep. 7, 1979, Ser. No. 76,289
Int. Cl.³ F28D 19/02
U.S. Cl. 165—1 58 Claims

1. A method of heat exchange between gaseous media and a particulate material which provides a heat exchange surface as it is circulated between first and second vessels for direct heat transfer with gaseous media comprising respectively withdrawing said particulate material from said vessels through first and second downcomers and transferring said particulate material to associated lift lines, pneumatically conveying said particulate material to said first vessel with a first gaseous stream flowing through one of said lift lines and to said second vessel with a second gaseous stream flowing through the other of said lift lines, each of said streams undergoing a pressure drop during the pneumatic conveyance of said particulate material, cocurrently transferring heat between said particulate material and gaseous stream in each of said lift lines, separating said particulate material from each of said gaseous streams and respectively collecting said particulate material in

said vessels, and transferring heat between said gaseous streams as a function of the flow rate weight ratios of said



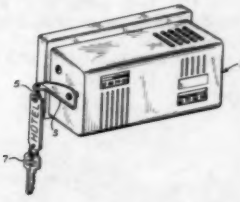
particulate material to said gaseous stream in each of said lift lines and the flow rate weight ratio of said gaseous streams.

4,374,541

TEMPERATURE CONTROL SYSTEM FOR CONSERVING ENERGY

Max Hoberman, 943 Prince St., Teaneck, N.J. 07666

Filed Mar. 12, 1981, Ser. No. 243,050
Int. Cl.³ F25B *29/00*; H01H *37/72*
U.S. Cl. 165—26 **9 Claims**



1. In a thermostat device for controlling heating and cooling systems having a temperature responsive element mounted to move an arm which opens and closes electrical contacts to initiate and interrupt the operation of heating and cooling apparatuses the improvement comprising

(a) means to increase the force required to operate the arm comprising spring members which are moved into the path of motion of the arm and cause the arm to need additional force applied to produce the required motion to open and close the electrical contacts, and

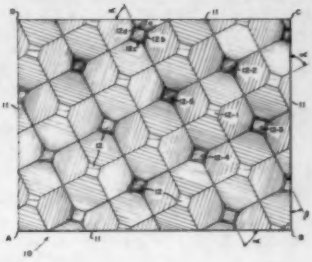
(b) means to control selectively the operation of the force increasing means, whereby the thermostat device will operate in conventional fashion when means (a) is not selected by means (b) to increase the force required to operate the arm, but whereby the thermostat device will have its set point temperature changed when means (a) is selected by means (b) to increase the operating force.

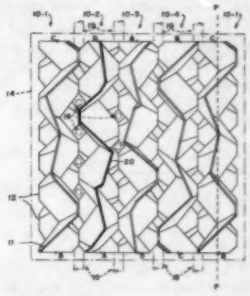
4,374,542

UNDULATING PRISMOID MODULES

Joel C. Bradley, Rio Mississippi 107 Ote. Aptdo. 85, col. Del Valle, San Pedro, Garza Garcia, N.L., Mexico

Filed Oct. 17, 1977, Ser. No. 843,054
Int. Cl.³ F28F *3/12*
U.S. Cl. 165—166 **7 Claims**





1. A stack of substantially identical undulating prismoid modules, each undulating prismoid module having a polygon shape in plan, and made of relatively rigid material; the stack having at least first and second modules, and means for providing confined flow of fluid between the modules, including inlet and outlet means; wherein the improvement comprises

for each module a plane passing through the centers of the prismoid bases in any row of prismoid bases being nonparallel to the sides of the module; and

the first module in the stack having a first orientation, and being disposed in a horizontal plane, and the second module having a second orientation which is said first orientation rotated 180° about a first horizontal axis, so that some, but not all, prismoid projecting bases of each module abut those of the other module.

4,374,543

APPARATUS FOR WELL TREATING

Charles N. Richardson, New London, Tex., assignor to Tri-State Oil Tool Industries, Inc., Bossier City, La.

Division of Ser. No. 179,487, Aug. 19, 1980, Pat. No. 4,314,608, which is a continuation-in-part of Ser. No. 158,889, Jun. 12, 1980, abandoned. This application Sep. 17, 1981, Ser. No. 303,190
Int. Cl.³ E21B *33/12*
U.S. Cl. 166—192 **3 Claims**

1. A pressure shearable plug for use in well treating operations comprising:

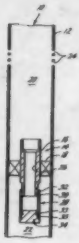
a cylindrical body having a bore extending vertically therethrough;

threads formed at the upper end of said cylindrical body for

attaching said body to a packer, whereby said pressure shearable plug and said packer may be used to selectively seal off a well bore;

threads at the lower end of said cylindrical body for threadably engaging a closure member; and,

a closure member for closing the lower end of said bore, said closure member having threads thereon adapted to engage the threads at the lower end of said cylindrical body,



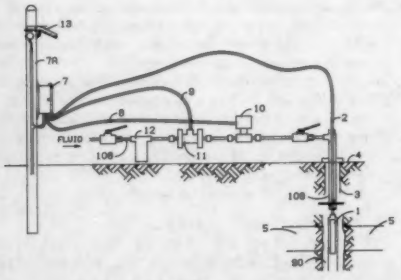
said cylindrical body and said closure member being formed of different materials having different shear strengths, whereby the threads on one of said cylindrical body and said closure member will be weaker than the intermeshing threads on the other of said body and said closure member and will preferrentially shear away when said closure member is subjected to a sufficient differential pressure.

4,374,544

TECHNIQUE FOR CONTROL OF INJECTION WELLS

Granval W. Westerman, Midland, Tex., and Corbett I. Otwell, Hobbs, N. Mex., assignors to Standard Oil Company (Indiana), Chicago, Ill.

Filed Sep. 19, 1980, Ser. No. 188,631
Int. Cl.³ E21B *43/16*
U.S. Cl. 166—252 **5 Claims**



1. A method of controlling the injection of a fluid through a wellbore into an underground formation which comprises:

(a) injecting said fluid through said wellbore into said formation;

(b) detecting the pressure of said fluid in said wellbore in the vicinity of said formation; and

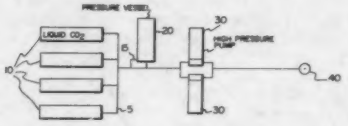
(c) using the pressure detected in step (b) to control the rate of injection of said fluid such that the pressure in the wellbore in the vicinity of said formation is maintained within a predetermined range.

4,374,545

CARBON DIOXIDE FRACTURING PROCESS AND APPARATUS

Ronald S. Bullen, and Allan T. Lillies, both of Calgary, Canada, assignors to L.H.B. Investment, Inc., Oklahoma City, Okla.

Filed Jan. 7, 1982, Ser. No. 337,743
Claims priority, application Canada, Sep. 28, 1981, 386809
Int. Cl.³ E21B *43/267*
U.S. Cl. 166—280 **23 Claims**



1. A method of fracturing an underground stratigraphic formation penetrated by a well bore comprising the steps of:

pumping a stream of liquified gas into said formation to cause the fracturing thereof;

introducing proppants into said stream of liquified gas for injection of said proppants into said fractures; and

pressurizing and cooling scid proppants to substantially the storage pressure and temperature of said liquified gas prior to introducing said proppants into said stream of liquified gas.

19. Apparatus for hydraulically fracturing an underground stratigraphic formation penetrated by a well bore comprising:

a high pressure pump for injecting a fracturing fluid down said well bore, said fluid comprising a liquified gas;

first storage means to store said liquified gas under pressure;

conduit means to provide fluid communication between said pump and said first storage means;

second storage means to store proppants at a temperature and pressure substantially equal to the storage pressure and temperature of said liquified gas; and

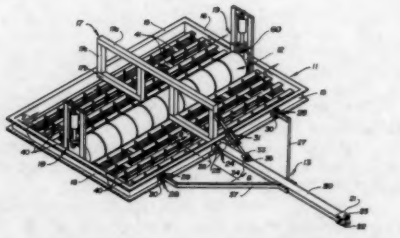
supply means to introduce the proppants from said second storage means into the liquified gas flowing through said conduit means.

4,374,546

CONDITIONING APPARATUS FOR DIRT RACE TRACKS

Charles E. Mitchell, West Delaware, Ohio, assignor to Larcom & Mitchell Company, Inc., Delaware, Ohio

Filed Jul. 2, 1980, Ser. No. 165,377
Int. Cl.³ A01B *5/00*
U.S. Cl. 172—148 **12 Claims**



1. A conditioning apparatus for dirt race tracks comprising a structural frame having a longitudinal axis disposed parallel to the path of movement of the apparatus and including a plurality of elongated tine supporting beams disposed in relatively spaced, transversely extending relationship to the direction of travel of the apparatus in traversing a track,

an elongated towing bar extending in forwardly projecting relationship to said frame for coupling of the apparatus to a towing vehicle, said towing bar having one end thereof

pivotably connected to said frame for swinging movement in a vertical plane about an axis transverse to the frame's longitudinal axis and the other end adapted to mechanically interconnect with a towing vehicle,

wheeled support means mounted on said frame for support thereof in traversing movement over a track in predetermined spaced relationship above a surface of the track, said wheeled support means including an elongated roller disposed in transversely extending relationship to the longitudinal axis of said frame, said wheeled support means being pivotably mounted on said frame to permit relative pivoting of said frame about an axis parallel to said elongated roller,

a roller mounting structure mechanically coupled between said wheeled support means and said frame and being selectively operable to adjust the vertical position of said frame relative to said wheeled support means,

a plurality of upstanding, earth working tines mounted on said frame in a predetermined relative arrangement, each of said beams having a plurality of said earth working tines mounted thereon in relatively spaced relationship, said beams being subdivided into two groups each having a plurality of said beams, said first group being positioned forward of said roller and said second group being positioned rearward of said roller, said earth working tines disposed in laterally offset relationship to each other tine on each other beam with respect to said longitudinal axis and having a tine on each successive beam in a group offset a same predetermined distance with respect to a tine on the next preceding beam, the tines on each group of beams all being offset in a same direction, but in relatively opposite directions as between said first and second groups of beams, each of said tines having a bottom end disposed relative to said frame to project a distance below said frame to penetrate into an upper surface layer of the track to a predetermined depth whereby the penetrating tine portions will be pulled through the track's surface layer during traversing movement of the apparatus and thereby form a loose earth cushion surface on the track, and

leveling means mechanically coupled between said frame and said towing bar for securing the towing bar in predetermined relationship to said frame to maintain said frame at a selected position relative to a horizontal plane when said towing bar is secured to a towing vehicle, said leveling means selectively operable to enable adjustment of the towing bar to a relative angular position with respect to said frame to position said frame at a desired selected position relative to a horizontal plane for any selected vertical spacing of said frame relative to a track surface.

4,374,547

CRANK CONNECTOR FOR DIRECTIONAL DRILLING

Jean-Paul Nguyen, Rueil Malmaison; Emmanuel Laval, Paris, and Andre Cendre, Coune sur Loire, all of France, assignors to Institut Francais du Petrole, Rueil-Malmaison, France

Continuation-in-part of Ser. No. 60,110, Jul. 24, 1979, Pat. No. 4,286,676. This application May 5, 1981, Ser. No. 260,613

Claims priority, application France, Jul. 24, 1978, 78 22063; Apr. 6, 1979, 79 08803; Apr. 6, 1979, 79 08804; Oct. 13, 1980, 80 21890

Int. Cl.³ E21B 7/08

U.S. Cl. 175—45 **4 Claims**

1. In a crank connector adapted for having its angle varied by remote control, the crank connector comprising first and second tubular members interconnected by a shaft, the shaft having an axis of rotation different from the axes of rotation of said first and second tubular members and fixedly rotatably secured to one of the first and second tubular members and movable between a locked rotatably secured poisition and a non-locked rotatably disengaged position with respect to the other tubular member, the shaft being movable into the non-lock position for causing said other tubular member to rotate about the axis of rotation of the shaft whereby the axes of rotation of the tubular members and the axis of rotation of the shaft define acute angles, and an auxiliary locking means for preventing relative rotation of the tubular members when disengaged and moved into the desired relative angular position prior to the tubular members being rotatably re-engaged, the improvement wherein the auxiliary locking means comprises at least one retractable locking finger positioned in a housing in one of the shaft and second tubular member, and axially extending grooves in the other of the shaft and second tubular member, said at least one locking finger and grooves located so as to have said at least one locking finger extend

from its housing to engage a corresponding one of said grooves after said shaft causes a desired rotation of said second tubular member when rotatably disengaged from said second tubular member, thereby preventing a further rotation of the second tubular member until the shaft and second tubular member return to a rotatably secured position, said at least one finger adapted for being forced back into its housing when said shaft and second tubular member are moved into a rotably secured position.

4,374,548

PLAYING VEHICLE WITH A PRIME MOVER

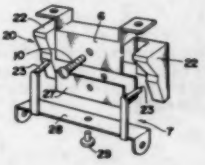
Eishin Ueno, Fuchu, and Sho Kikuchi, Musashino, both of Japan, assignors to Takagi Manufacturing Co., Ltd., Toyama, Japan

Filed Oct. 22, 1980, Ser. No. 199,542

Claims priority, application Japan, Oct. 25, 1979, 54-137971; Dec. 15, 1979, 54-163171

Int. Cl.³ B62D 9/02

U.S. Cl. 180—79 **9 Claims**



1. A motorized sporting vehicle for transporting a person, said vehicle comprising:

a vehicle body extending in a longitudinal direction and constructed to support thereon a person;

front and rear axles, each said axle having on opposite ends thereof wheels;

front and rear axle support means for supporting said front and rear axles, respectively, on longitudinally spaced front and rear portions, respectively, of said body, such that right and left sides of said body, with respect to said longitudinal direction, are capable of up and down oscillation with respect to said axles upon lateral shifting of the weight of the person to the right and left of said body, respectively, and

such that opposite ends of said axles are capable of oscillation in opposite directions longitudinally of said body;

prime mover means mounted for rotating one of said axles, and thereby for driving said vehicles;

motion conversion means associated with each said axle for, upon vertical movement of one side of said body with respect to said axle, imparting to opposite ends of said axle movement in opposite directions longitudinally of said body, whereby shifting of the weight of the person to one side of said body achieves longitudinal converging movement of those ends of said axles adjacent said side of said body, thus resulting in turning of said vehicle in the direction of said side; and

each said motion conversion means including stabilizing means for preventing movement of said ends of the respective said axle longitudinally of said body in the absence of lateral vertical movement of said body with respect to said axle.

4,374,549

DRIVE UNIT FOR A TWO-WHEELED MOTOR-DRIVEN VEHICLE AND VEHICLE INCLUDING SAID UNIT

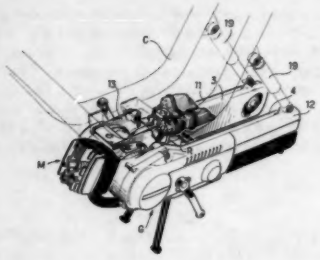
Bernard Lacroix, Montbeliard, France, assignor to Cycles Peugeot, Valentigney, France

Filed Jul. 29, 1981, Ser. No. 287,848

Claims priority, application France, Aug. 4, 1980, 80 17160

Int. Cl.³ B62M *7/04*; B62K *25/04*

U.S. Cl. 180—207 **8 Claims**



1. A drive out for a two-wheeled motor-driven vehicle comprising an assembly comprising a motor and a gearing down relay, suspension arms connected to the motor and adapted to receive, in the vicinity of free ends of the arms, a driving wheel of the vehicle, support means for a suspended part of the vehicle, the motor having a crankshaft, the relay having an output shaft and an input shaft, the input shaft being drivingly connected to the crankshaft of the motor and being spaced further away from the crankshaft than the output shaft of the relay, a pedal crank gear having a shaft which is located in said assembly between the motor and the relay and a unidirectional coupling drivingly coupling the crank gear shaft to the output shaft.

4,374,550

UPRIGHT FOR LIFT TRUCK

Richard J. Bartow, Athens, Mich., assignor to Clark Equipment Company, Buchanan, Mich.

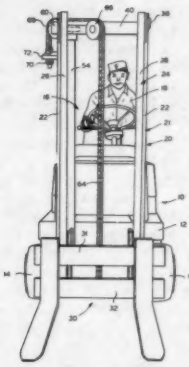
Continuation of Ser. No. 17,779, Mar. 8, 1979, abandoned, Continuation-in-part of Ser. No. 842,765, Oct. 17, 1977, abandoned. This application Oct. 30, 1980, Ser. No. 202,099

Int. Cl.³ B66B *9/20*

U.S. Cl. 187—9 E **42 Claims**

1. In a upright structure for lift trucks and the like having one upright section including transversely spaced vertical rails, a telescopic upright section including transversely spaced vertical rails mounted for elevation relative to said one section and elevatable load carrier means mounted for elevation relative to said telescopic section, the improvement comprising a sole asymmetric lift cylinder assembly mounted in the upright structure which is operatively connected to said telescopic upright section, elongated flexible lifting means operatively connected to said cylinder assembly, to said one upright section and to said load carrier means and having one end means thereof secured a substantial distance outwardly of one side only of the cylinder assembly in a direction which includes a lateral component and having the other end means thereof secured to said load carrier means, said cylinder assembly together with said flexible lifting means being adapted to elevate said load carrier means relative to the telescopic upright section and the latter section relative to the one upright section, the lift cylinder being located a substantial distance toward one lateral side of the upright structure such that it projects at least partially into the area of interference by an adjacent vertical rail with the visibility of the operator from his normal line of sight through said adjacent vertical rail, said normal line of sight being defined when the operator is located in a predetermined designed position and attitude for normal operation of the lift truck, the operative connection of said cylinder assembly to said telescopic section in relation to said one and other end means being such that at least approximately balanced lifting force moments act upon the upright structure in the transverse plane of the upright at least when a load is carried substantially centrally thereof.

37. In an upright structure for lift trucks and the like having a fixed upright section including transversely spaced vertical



rails, a first telescopic upright section including transversely spaced vertical rails mounted for elevation relative to said fixed section, a second telescopic upright section including transversely spaced vertical rails mounted for elevation relative to said first telescopic section and elevatable load carrier means mounted for elevation relative to said second telescopic section, the improvement comprising first and second wheel elements mounted operatively from said first telescopic section in substantial longitudinal rotating alignment and spaced relation one to the other, sole flexible lifting means reeved on said first and second wheel elements, said first and second wheel elements being operatively mounted from said first telescopic section in such a manner that one end means of said flexible lifting means is secured substantially centrally of said second telescopic section and the other end means is secured in vertically fixed relation to the fixed upright section, and a lift cylinder assembly mounted in the upright structure asymmetric thereof and operatively connected to said first telescopic section intermediate the axes of rotation of said first and second wheel elements for actuating the wheel elements and said flexible lifting means to elevate said second telescopic section relative to the first telescopic section and the latter section relative to the fixed section, the lift cylinder assembly being located a substantial distance toward one lateral side of the upright structure such that it projects at least partially into the

area of interference by an adjacent vertical rail with the visibility of the operator from his normal line of sight through said adjacent vertical rail, said normal line of sight being defined when the operator is located in a predetermined designed position and attitude for normal operation of the lift truck.

4,374,551

MECHANICAL ACTUATING DEVICE FOR A SPOT-TYPE DISC BRAKE

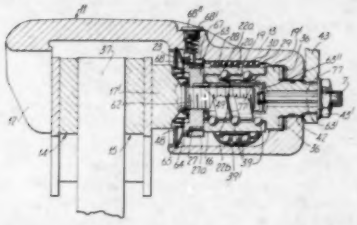
Alfred Birkenbach, Hattersheim, and Helmut Franke, Wehrheim, both of Fed. Rep. of Germany, assignors to ITT Industries, Inc., New York, N.Y.

Filed Oct. 29, 1980, Ser. No. 201,941

Claims priority, application Fed. Rep. of Germany, Nov. 20, 1979, 2946854

Int. Cl.³ F16D 65/16, 65/52

U.S. Cl. 188—71.9 **17 Claims**



1. A mechanical actuating device for a spot-type disc brake comprising:

a brake caliper embracing a brake disc having a cylindrical bore disposed in one leg thereof, said bore having a longitudinal axis parallel to an axis of rotation of said brake disc;

an actuating spindle disposed in said bore coaxial of said longitudinal axis;

an actuating nut disposed in said bore coaxial of said longitudinal axis cooperating with said actuating spindle in a manner to advance a brake shoe actuating member when an axial relative displacement between said actuating spindle and said actuating nut occurs due to a relative rotation between said actuating spindle and said actuating nut caused by an actuating means connected to one of said actuating spindle and said actuating nut; and

an automatic brake pad clearance adjusting device disposed in said bore coaxial of said longitudinal axis including

an adjusting spindle disposed coaxial of said longitudinal axis connected to and extending away from a surface of said brake shoe actuating member remote from said brake disc, said adjusting spindle and said brake shoe actuating member being locked to each other to prevent rotational movement thereof,

an adjusting nut disposed coaxial of said longitudinal axis threaded on said adjusting spindle and accessible from the outside of said one leg remote from said brake disc for turning thereof during brake pad replacement, and

a clutch device disposed coaxial of said longitudinal axis associated with said adjusting nut to cause said adjusting spindle to execute a rotary motion advancing said adjusting spindle toward said brake disc, said clutch device becoming effective during a brake application when a nominal brake pad clearance is exceeded;

said actuating nut and said actuating spindle transmitting their relative axial displacement to said adjusting nut;

said adjusting nut and said adjusting spindle are subjected to the force of a spring in a brake release direction; and

said spring is a cup spring acting between said leg and said adjusting nut.

4,374,552

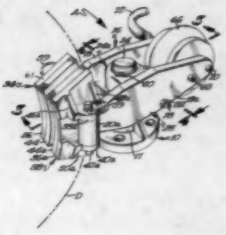
PIVOTED LEVER CALIPER BRAKE

Leonid Dayen, Plymouth, Minn., assignor to Horton Manufacturing Co., Inc., Minneapolis, Minn.

Continuation of Ser. No. 53,413, Jun. 29, 1979, abandoned. This application Apr. 9, 1981, Ser. No. 252,288

Int. Cl.³ F16D 55/10

U.S. Cl. 188—72.9 **2 Claims**



1. A caliper brake comprising:

(a) a base,

(b) a single pole mounted on said base and normal thereto,

(c) first and second identical brake arms having first and second ends,

(d) each of said arms having a pole boss extending therefrom intermediate the first and second ends and adjacent an edge of the arm and spaced from the opposite edge thereof and

(e) a hole extending therethrough, said pole extended through the holes of said pole bosses with the pole boss of one arm positioned upon the pole boss of the other arm with the holes of said pole bosses in alignment thereby mounting said arms in pivotal juxtaposition,

(f) first and second brake shoes each having a friction facing thereon,

(g) each of said arms having a shoe boss on the first end thereof, and a hole extending therethrough parallelly disposed to the hole in the pole boss,

(h) each of said brake shoes having a pair of spaced flanges and

(i) each flange having a hole extending therethrough,

(j) first and second pins extending through each of the holes of said flanges of said first and second brake shoes and extending through the shoe boss of the first ends of said first and second arms thereby pivotally mounting said brake shoes on said arms,

(k) said base having a stop pin extending upwardly therefrom and parallelly disposed to said single pole,

(l) first and second guide pins mounted on said first and second arms intermediate the pole boss and the second end of said arms and extending normal thereto and contactable with said stop pin,

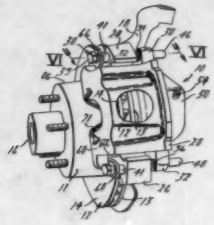
(m) means for adjustably positioning each of said guide pins relative to the brake arm for adjusting the pivotal position of said brake arms each to the other, and

(n) means interposed between the second ends of said brake arms for pivoting said arms upon said pole and the friction facings thereof together to grip a disc positioned between said friction facings of said shoes and away from each other for release of the disc.

4,374,553
CALIPER TYPE DISC BRAKE

Raymond E. Peck, Dearborn Heights; Randall P. Petresh, Northville, and Gary N. Benninger, Dearborn, all of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Continuation-in-part of Ser. No. 959,554, Nov. 13, 1978, abandoned. This application Mar. 13, 1980, Ser. No. 129,866
Int. Cl.³ F16D 55/224
U.S. Cl. 188—73.45 5 Claims

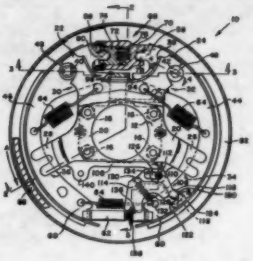


1. A disc brake comprising:
a rotatable rotor having friction faces on the first and second side thereof;
a stationary torque member being disposed at one of the first and second sides of the rotor;
said torque member having an ear radially extending outward of said rotor;
a caliper straddling said rotor;
a first and second brake shoe adjacent the first and second sides of said rotor;
a one-piece guide element slidably mounting a mounted portion of said caliper to said ear of said torque member with said torque member being interposed between said mounted portion of said caliper and said rotor such that said caliper is movable in a transverse direction to said rotor faces along said guide element;
said guide element spanning said rotor and passing through an internally threaded aperture in said ear of said torque member and threadably engaged therewith;
said guide element comprising a pin with spaced apart first and second non-threaded portions with a threaded section therebetween engaging said ears of said torque member;
the first non-threaded portion extending through an aperture in said mounted portion of the caliper and the second non-threaded portion extending through an aperture in the first brake shoe, with said portion of the caliper and the first brake shoe being disposed on opposing sides of said ear of said torque member;
the second non-threaded portion being structurally stronger than said first non-threaded portion and having a larger radius than said first non-threaded portion and threaded portion of said pin and said apertures in said torque member and said caliper;
said aperture in said first brake shoe being larger than the apertures in said torque member or caliper to slidably receive said second non-threaded section;
said first brake shoe being mounted to said second non-threaded portion of said guide element on an opposite side of said rotor from said mounted portion of said caliper such that torque applied to said brake shoe from said rotor is transferred through said second non-threaded portion of said guide element to said stationary torque member;
actuating means for moving said brake shoes into engagement with said friction faces of said rotor;
retaining means for retaining said second brake shoe on the same side of said rotor as said mounted portion of said caliper in an operable position between said actuating means and said rotor and in torque transfer relationship directly with said torque member;
the caliper and first brake shoe being slidably mounted on the first and second non-threaded portions respectively of said pin for movement transverse to said rotor.

4,374,554
DUO-SERVO DRUM BRAKE

James J. Colpaert, Granger, Ind., assignor to The Bendix Corporation, Southfield, Mich.

Filed Oct. 3, 1980, Ser. No. 193,851
Int. Cl.³ F16D 51/24, 65/24
U.S. Cl. 188—106 A 1 Claim



1. In a drum brake of the type including a pair of arcuate brake shoes carried on a backing plate, said brake shoes being movable into engagement with a rotatable brake drum to effect a brake application to retard rotation of said brake drum, said backing plate including a pair of radially extending plates, each of said plates having a plurality of circumferentially spaced arms extending radially therefrom, said plates being secured to one another so that the arms of one plate are axially spaced from and circumferentially coincident with the arms of the other plate so as to define circumferentially spaced pairs of radially-extending arms, said brake shoes being slidably received between said arms, characterized in that two circumferentially adjacent pairs of said arms define a circumferentially-extending recess therebetween, said circumferentially-extending recess receiving a hydraulic actuator engaging said brake shoes to effect a brake application, said hydraulic actuator cooperates with said brake shoes to always remain spaced from said plates, said hydraulic actuator pivotally carries a parking lever engageable with one of said brake shoes and pivotally engaged to said hydraulic actuator at a location spaced axially outwardly from the engagement with said one brake shoe, said one brake shoe defining a confronting end engaging said hydraulic actuator and a portion radially spaced and circumferentially in alignment with said confronting end, said parking lever forms an abutment engageable with said portion to move said one brake shoe during a parking brake application, and said abutment and said portion are disposed within said circumferentially-extending recess.

4,374,555
CARRYING CASE WITH GUARDS

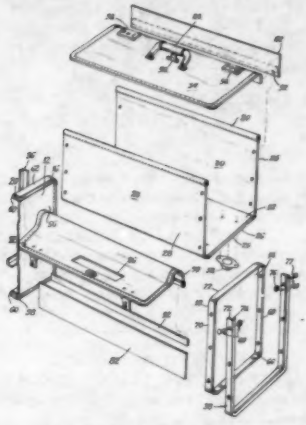
Joseph E. March, Chicago, Ill., assignor to Platt Luggage, Inc., Chicago, Ill.

Filed Jan. 26, 1981, Ser. No. 228,672
Int. Cl.³ A45C 13/04, 13/36
U.S. Cl. 190—48 1 Claim

1. A carrying case adaptable for carrying relatively heavy objects comprising:
a unitary member of U-shaped cross section constituted by side walls and a bottom wall including a reinforcing plate;
molded end shells of relatively rigid material, each having a flat panel in the shape of a rectangle with arcuate corners, each end shell having a peripheral flange extending along the periphery of the flat panel, the flange including a lesser periphery extending outwardly and substantially perpendicular to the flat panel, a curved portion where the flange

reverses back upon itself, and a greater periphery spaced apart from and substantially parallel to the lesser periphery, the lesser periphery and the curved portion and the greater periphery successively constituting the flange and defining an inwardly facing channel for receiving an edge of said unitary member;

overlying and underlying lid flaps each hinged below the tops of said end shells and conforming to the upper portions and respective arcuate corners of the peripheral flanges of said end shells when the case is in a closed position, said overlying flap having an aperture so as to receive therethrough a handle secured to said underlying flap so that the carrying case may conveniently be carried when in a closed position;



U-shaped metal guards, each guard having a longer arm and a shorter arm so that the guard has an L-shaped cross section, said longer arm extending generally parallel to and adjacent the respective greater periphery, said shorter arm extending adjacent the respective curved portion but unattached thereto; and

rivet assemblies arranged in a single respective series along each of said guards, each of said rivet assemblies extending through sequentially the longer arm of the respective guard, the greater periphery of the respective flange, an edge of the unitary member, and the lesser periphery of the respective flange.

4,374,556

CLUTCH RELEASE DEVICE

Armin Olschewski, Schweinfurt; Manfred Brandenstein, Eussenheim; Lothar Walter, Schweinfurt, and Horst M. Ernst, Eltingshausen, all of Fed. Rep. of Germany, assignors to SKF Kugellagerfabriken GmbH, Schweinfurt, Fed. Rep. of Germany

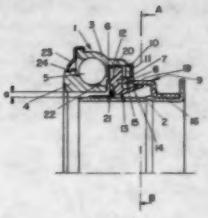
Filed Nov. 5, 1980, Ser. No. 204,185

Claims priority, application Fed. Rep. of Germany, Nov. 8, 1979, 7931492

Int. Cl.³ F16D *23/14*

U.S. Cl. 192—98 **11 Claims**

1. In a clutch release bearing assembly, in which a clutch thrust bearing is mounted to be radially displaceable with respect to sliding sleeve means and has a fixed bearing ring and a rotatable bearing ring, housing means coupled to the sliding sleeve has a radially directed flange that engages said fixed bearing ring of said clutch thrust bearing, said fixed bearing ring having a bore, and a ring of elastic material is positioned in the bore or on the surface of the fixed bearing ring, the ring of elastic material constituting means for damping the relative movement of the clutch thrust bearing with respect to the sliding sleeve; the improvement wherein said housing means has a bore with axially directed open recesses facing said clutch thrust bearing, said damping ring having resilient tongues extending substantially axially from its inner circum-



ference, said resilient tongues engaging said recesses of said housing means, the outer radial surface of each said recess having a circular shape, and being joined at its circumferential ends to a flat surface extending between adjacent recesses.

4,374,557

COIN CHANGER FOR A VENDING MACHINE

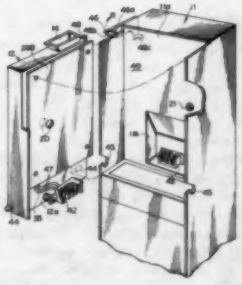
Osamu Sugimoto; Masaki Akagawa, and Yukichi Hayashi, all of Sakado, Japan, assignors to Kabushiki Kaisha Nippon Coinco, Tokyo, Japan

Filed Nov. 14, 1980, Ser. No. 206,690

Claims priority, application Japan, Nov. 22, 1979, 54/162251[U]

Int. Cl.³ G07F *3/02*

U.S. Cl. 194—100 A **4 Claims**



1. A coin changer for a vending machine comprising:

an electronic type coin discrimination device including a discrimination means for electronically discriminating a true coin from a counterfeit coin among deposited coins, a true coin passage and a counterfeit coin passage provided at a post stage of said discrimination means and sort out means for sorting out coins guided to said true coin passage by denomination; and

a coin changer main part including coin receiving means for receiving coins having been sorted out by said sort out means, control means for controlling operations such as counting the amount of deposited coins, vending of an article and returning of money and an electromagnetic device controlled by a discrimination signal representative of trueness or falsity of the deposited coin provided from said discrimination means and also by said control means to cause a reject member to project into or to be withdrawn from a predetermined point immediately before entrances to said true coin passage and said counterfeit coin passage for guiding the deposited coin to either one of said passages

characterized in that said coin changer main part further

comprises coin detection means for generating signals for counting the amount of the deposited coins for respective denominations in response to passing of the coins having been sorted out by said sort out means, said signals being supplied to said control means and that

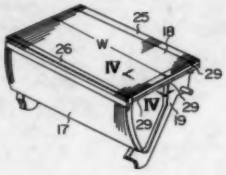
the output of said discrimination means in said electronic type coin discrimination device is utilized not for controlling counting of the amount of the deposited coins but only for controlling said electromagnetic device, electric wirings connect said coin changer main part with said coin discrimination device, said electric wirings being provided with disengageable connector means, and said electronic type coin discrimination device is detachably mounted in said coin changer main part.

4,374,558

STEPS OF PASSENGER CONVEYOR

Cyuichi Saito, Katsuta, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed Sep. 29, 1980, Ser. No. 191,845
Claims priority, application Japan, Sep. 28, 1979, 54-123919
Int. Cl.³ B66B *9/12*
U.S. Cl. 198—333 **4 Claims**



1. Steps of a passenger conveyor each comprising:

a tread formed with a multiplicity of cleats and grooves alternately disposed and extending in a direction of movement of the steps in alignment with teeth of comb plates mounted at embarkation and disembarkation areas of the passenger conveyor;

a riser connected to one end of said tread; and

a plurality of frames each attached to one of opposite ends of said tread;

wherein the improvement comprises: reinforcing members interposed between said plurality of frames, said reinforcing members being joined by spot welding to an undersurface of said tread, said tread is formed of a steel sheet bent in such a manner so as to provide plannar steel sheet side edge surface portions with said cleats and grooves being located in a central portion of the tread between the plannar side edge surface portions said spot welding being effected by utilizing said grooves; and

a plurality of side pieces disposed on said plannar side edge surface portions and extending in a direction of movement of the steps, said side pieces are transversely adjustably secured to said planar side edge surface portions by fastening means so as to enable a compensation of tolerance variations occuring during the bending of the steel sheet.

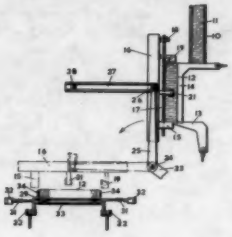
4,374,559

APPARATUS FOR HANDLING ARTICLES

David C. Morton, Harrogate, England, assignor to Baker Perkins Holdings Ltd., Peterborough, England

Filed Jan. 23, 1981, Ser. No. 227,926
Claims priority, application United Kingdom, Mar. 12, 1980, 8008405
Int. Cl.³ B65G *59/06*
U.S. Cl. 198—429 **5 Claims**

1. Apparatus for feeding batches of biscuits from a plurality of magazines spaced equally from one another alongside a continuously moving infeed conveyor leading to a wrapping machine and including a series of pusher bars spaced at a different pitch from the magazines and each serving to advance to the wrapping machine at least one batch of biscuits, said apparatus including a biscuit carrier movable from a receiving position in which it receives batches of biscuits from all of the magazines to a discharge position in which it holds the batches above the conveyor with the batches aligned transversely to the conveyor, means for charging the carrier simultaneously



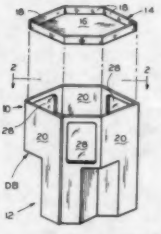
with batches from all the magazines, means for effecting sequential dropping of the batches from the carrier onto the infeed conveyor until all the batches have been dropped, and means for thereafter moving the carrier to the receiving position for recharging it with further batches and returning it to the discharge position to enable the further batches to be dropped for advance by the pusher bars following those which advanced the previous group of batches.

4,374,560

COLLAPSIBLE DISPLAY BIN STAND

Robert J. Howlett, Edison, N.J., assignor to Container Corporation of America, Chicago, Ill.

Filed Dec. 14, 1981, Ser. No. 330,165
Int. Cl.³ B65D *5/50, 5/52, 85/00*; A45D *19/04*
U.S. Cl. 206—44 R **6 Claims**



1. A collapsible, automatically erectable, display bin stand formed of foldable sheet-material such as paperboard, comprising:

(a) a hexagonal-shaped, upper, receptacle member, supported by a base member which includes a plurality of hexagonal-shaped tubes;

(b) said stand including six generally inverted, L-shaped, side panels extending substantially the entire height of said stand and being joined to each other on parallel fold lines to form a tubular structure;

(c) said side panels having integral upper and lower portions which form parts of the receptacle and base members, respectively;

(d) said base member including a plurality of panels joined to said side panel lower portions and to each other on parallel fold lines to form said hexagonal-shaped tubes;

(e) a floor panel in said receptacle member supported on said base member.

4,374,561

ARTICLE CARRIER

James T. Stout, Acworth, and Prentice J. Wood, Hapeville, both of Ga., assignors to The Mead Corporation, Dayton, Ohio

Filed Oct. 13, 1981, Ser. No. 310,894
Int. Cl.³ B65D 5/48
U.S. Cl. 206—188 7 Claims

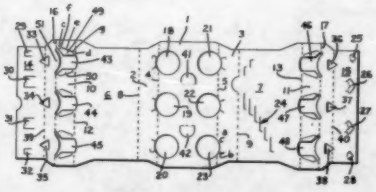
1. An article carrier comprising a bottom panel, opposed side walls foldably joined to opposite side edges of said bottom panel, end panels foldably joined to the ends of said side walls and extending transversely inward therefrom, riser panels foldably joined to said end panels respectively, the riser panels at each end of the carrier being secured together in face contacting relation, a multi-ply handle connected at its ends to said riser panels, a medial keel panel formed integrally with each riser panel at one end of the carrier and projecting inwardly therefrom, a transverse partition panel foldably joined to one of said keel panels and arranged with its outer edge anchored to one of said side walls, a reinforcing tab joined to the other of said keel panels and disposed in flat face contacting relation with said transverse partition panel, at least one cut formed along the junction behind said reinforcing tab and said other keel panel, and an aperture formed astride the fold line between said transverse partition panel and said one keel panel.

4,374,562

ARTICLE CARRIER

James R. Oliff, Austell, Ga., assignor to The Mead Corporation, Dayton, Ohio

Filed Feb. 23, 1981, Ser. No. 236,744
Int. Cl.³ B65D 65/12, 85/30
U.S. Cl. 206—434 5 Claims



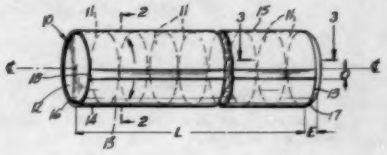
1. An article carrier comprising parallel top and bottom panels, parallel side panels, said side panels being interconnected respectively to the side edges of said bottom panel by a pair of sloping panels, a heel receiving aperture formed substantially in one of said sloping panels, a retention tab foldably joined to said one sloping panel, said retention tab being joined along the periphery of said heel receiving aperture by means of spaced connecting elements, said connecting elements being separated by an expansion slit, and both ends of said expansion slit being curved generally toward said heel receiving aperture.

4,374,563

NOVEL PACKAGE FOR WATER SANITIZING CHEMICAL AND METHOD FOR PREPARING IT

Roy P. Alexander, Killingworth, Conn., assignor to Olin Corporation, New Haven, Conn.

Filed Oct. 27, 1980, Ser. No. 200,801
Int. Cl.³ B65D 85/62, 65/00
U.S. Cl. 206—499 16 Claims



1. A novel package of available chlorine compound for placing in the strainer basket of a swimming pool skimmer unit comprised of:

a. a plurality of tablets of said available chlorine compound:
   1. each of said tablets having two substantially parallel planes joined to a cylindrical exterior,
   2. each of said tablets being stacked together with one of said planes of one tablet being adjacent to one of said planes of a next of said tablets and forming a stick of desired length, said stick having a longitudinal axis perpendicular to said planes, and

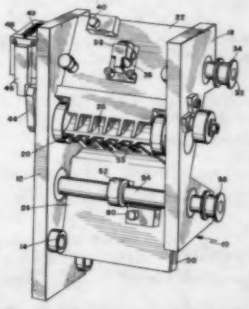
b. said stick being covered with a sheet of heat shrinkable, liquid impervious synthetic material secured at opposite ends around said cylindrical exterior, leaving the outermost plane of the tablet at each end of said stick uncovered.

4,374,564

TICKET DIVERTER MODULE

Gregory E. Miller, Escondido, and John E. Toth, San Diego, both of Calif., assignors to Cubic Western Data, San Diego, Calif.

Filed Dec. 1, 1980, Ser. No. 211,029
Int. Cl.³ B07C 5/00
U.S. Cl. 209—583 9 Claims



1. A diverter module unit for a ticket handling system, said unit comprising:

housing means defining a ticket inlet and a plurality of ticket outlets,

one of said outlets is an exit outlet for returning a ticket to a patron,

the other of said outlets is a capture passage for retaining a ticket,

diverter means for selectively diverting a ticket from said inlet to a selected one of said outlets,

said capture passage includes escrow means for selectively holding a ticket for inspection,

said escrow means includes a transport roller for engaging a ticket in said capture passage, and an escrow roller for selective movement into and out of engagement with said transport roller.

4,374,565

STAND FOR WRITING DEVICES

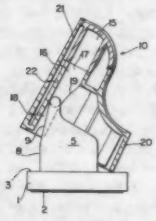
Ruediger Neumann, Kiel, Fed. Rep. of Germany, assignor to Koh-I-Noor Rapidograph, Inc., Bloomsbury, N.J.

Filed Sep. 16, 1980, Ser. No. 187,665

Claims priority, application Fed. Rep. of Germany, Sep. 27, 1979, 7927469[U]

Int. Cl.³ A47F *7/00*

U.S. Cl. 211—69.5 **5 Claims**



1. A stand for writing devices, such as tube writers and the like, comprising a lower part, that is adapted to be placed upon a, supporting surface and an upper part which is mounted for pivotable movement with respect to said lower part and which further comprises means to accept at least one writing device, wherein said upper part is in bearing contact with laterally extending bearing pins of said lower part which extend from each of at least two supports extending upwardly from the lower part, wherein the bearing pins (**6** and **7**) extend laterally proximate the upper end area of each of said support (**4** and **5**) wherein the upper part (**10**) further comprises guide slots (**16**) which are open to the bottom of said upper part and extend upwardly within said upper part and accept said bearing pins, whereby the bearing pins (**6** and **7**) and the upper part (**10**) are operable to frictionally engage in a pivoted position, so that a lower longitudinal edge of the upper part rests upon an upper surface of the lower part (**1**).

4,374,566

JIB CRANE WITH POLYCENTRICAL TRAJECTORY

Claudio Spera, Salita Superiore della Rondinella 18/7, Genoa, Italy

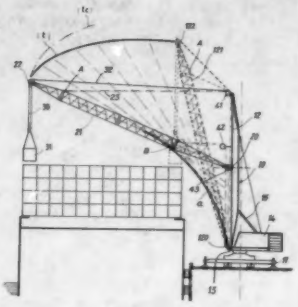
Filed Oct. 30, 1980, Ser. No. 202,292

Claims priority, application Italy, Nov. 12, 1979, 12814 A/79

Int. Cl.³ B66C *23/06*

U.S. Cl. 212—199 **4 Claims**

1. A tower crane comprising a vertical tower, a trolley movable vertically on said tower, a jib pivotally connected to said trolley and extending at an angle from said vertical tower, a pulley at an outer end of said jib, a hoist running over said pulley and down to a suspended load and means for varying the angle of said jib as a function of the vertical position of said trolley to decrease the angle between said jib and said tower



when said trolley descends and conversely to increase the angle between said jib and said tower as said trolley ascends.

4,374,567

POWDER ACTUATED PISTON TOOL WITH POWER ADJUSTMENT

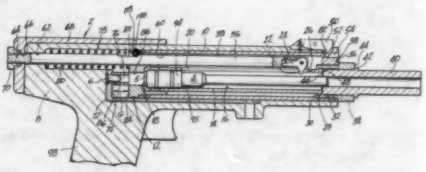
Marc Combette, and Jean Ollivier, both of Valence, France, assignors to Olin Corporation, New Haven, Conn.

Filed Apr. 9, 1980, Ser. No. 138,789

Claims priority, application United Kingdom, Apr. 10, 1979, 7912653

Int. Cl.³ B25C *1/14, 1/18*

U.S. Cl. 227—10 **4 Claims**



1. A power adjustment mechanism for use in a powder actuated fastener driving tool comprising:

(a) a housing;

(b) means forming a barrel connected to said housing, said barrel having a breech end and a muzzle end;

(c) means forming a firing chamber at the breech end of said barrel;

(d) a fastener driving piston reciprocally slidably disposed in said barrel;

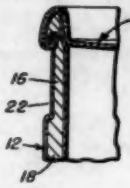
(e) stop means nonrotatably reciprocally movably disposed in said barrel, muzzlewardly of said firing chamber, said stop means being operable to engage a breechward surface on said piston to stop return movement of said piston from a fired position to a firing position thereby establishing said firing position of said piston within said barrel; and

(f) adjustment means operably connected to said stop means for moving said stop means axially of said barrel to selectively vary the spacing between said stop means and said firing chamber whereby a variable volume gas expansion chamber is provided in said barrel between said firing chamber and a breechward end of said piston to variably control power output of said tool.

4,374,568
COMPOSITE CONTAINER WITH COMPRESSED BODY WALL PORTION

John D. Horton, Hartsville, S.C., assignor to Sonoco Products Company, Hartsville, S.C.

Division of Ser. No. 234,191, Feb. 13, 1981. This application Oct. 29, 1981, Ser. No. 316,444
Int. Cl.³ B65D 3/10
U.S. Cl. 229—5.5 5 Claims

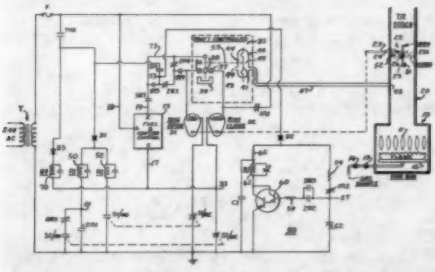


1. In a composite container constructed particularly for the accommodation of the cutting blade and drive wheel of a conventional can opener, a composite wall defining a tubular body with opposed ends, said wall, along a circumferential section of the tubular body adjacent at least one of said ends, being inwardly compressed and densified, defining a wall portion both thinner than and of a greater density than the remainder of said wall, said circumferential section having an internal diameter equal to the internal diameter of the remainder of said tubular body, a metal end cap overlying said one of said ends, said end cap including a peripheral flange seamed to said wall portion to define a peripheral sealing bead, said circumferential section and said wall portion defined thereby extending a substantial distance along said tubular body beyond said bead to define an external recess peripherally about said body.

4,374,569
FURNACE DRAFT CONTROL SYSTEM WITH ELECTRONIC LOSS-OF-DRAFT TIMER

Thomas E. Hayes, Goshen, Ind., assignor to Johnson Controls, Inc., Milwaukee, Wis.

Filed Jul. 29, 1981, Ser. No. 288,109
Int. Cl.³ F23N 3/00
U.S. Cl. 236—1 G 8 Claims

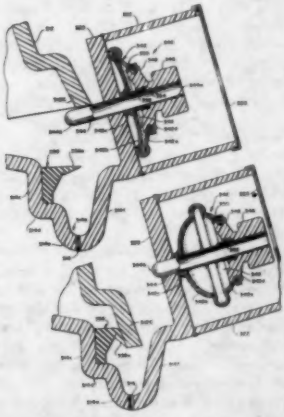


1. In combination with a furnace having a firebox and adapted to be connected to a source of fuel by means of fuel control means, a movable element movable between a closed and an open position for controlling the flow of air through a firebox of said furnace, and a thermostat for generating a call-for-heat signal from a space to be heated by said furnace, the improvement comprising: flue means for communicating combustion gases from said firebox to a chimney and substantially free of losses to the atmosphere between said firebox and chimney; motor means responsive to a run open signal for operating said movable element toward said open position and responsive to a run closed signal for operating said element toward said close position; first limit switch means actuated when said movable element is in said open position; second limit switch means actuated when said movable element is in said closed position; holding circuit means responsive to a call-for-heat signal only when said second limit switch means is actuated for generating an initial run open signal to said motor means; controller means including pressure sensing means responsive to the pressure in said flue means for generating a run open signal when the draft in said flue means is less than a first predetermined value, and for generating a run close signal when the draft in said flue means is greater than a second predetermined value, said controller means generating neither of said signals when the draft is between said first and second predetermined values; electronic timer circuit means responsive to the actuation of said first limit switch means when said movable element is in said open position following a predetermined time interval after said holding means is actuated for generating a timing signal of predetermined duration representative of a trial-for-draft period; first enable circuit means energized by said timer circuit means during said trial-for-draft period for energizing said fuel control means and for enabling said controller means to couple said run open and run close signals to said motor means; said timer circuit means being connected in circuit with said first limit switch to de-energize said first enable circuit means if said controller means senses no draft in said flue means during said trial-for-ignition period.

4,374,570
STERILIZED STORAGE CONTAINER

Roger S. Sanderson, Dana Point, and Robert C. Welchel, Newport Beach, both of Calif.

Continuation-in-part of Ser. No. 895,239, Apr. 10, 1978, Pat. No. 4,247,517, which is a continuation-in-part of Ser. No. 821,042, Aug. 1, 1977, Pat. No. 4,251,482, which is a continuation-in-part of Ser. No. 734,228, Oct. 20, 1976, abandoned, which is a continuation-in-part of Ser. No. 703,044, Jul. 6, 1976, Pat. No. 4,196,166, which is a continuation-in-part of Ser. No. 640,824, Dec. 15, 1975, abandoned. This application Jul. 25, 1980, Ser. No. 172,421
Int. Cl.³ G05D 27/00
U.S. Cl. 236—92 R 7 Claims



1. An actuator comprising:

flexible means defining an expandable chamber having opposing end walls, one of said end walls having a hole formed therein;

an actuator pin secured to the other of said end walls and extending through said chamber and through said hole in a manner which permits the pin to slide within said hole as

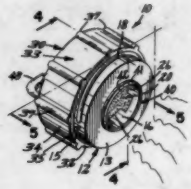
the chamber expands or contracts while preventing fluid leakage through said hole, said actuator pin having a valve passage extending through one end of the pin and opening to the interior of the chamber to permit environment to enter the chamber; and

including valve means responsive to the temperature of the environment applied to said chamber for automatically closing the valve passage to capture a quantity of said environment in said chamber so that subsequent changes in the environment on the exterior of the chamber will cause the chamber to expand or contract accordingly and cause said actuator pin to slide within said hole when the surrounding end wall is restrained.

4,374,571
SCENT DISPENSER

George T. Hirvela, 6816 Tower Ave., Superior, Wis. 54880

Filed Feb. 20, 1981, Ser. No. 236,311
Int. Cl.³ A24F 25/00; A61L 9/04
U.S. Cl. 239—36 5 Claims



1. An animal scent holding and releasing device for outdoor use, comprising:

(a) a container having a continuous side wall, a first end having an opening therein, and a closed second end opposite said first end, said container having a generally circular cross-section;

(b) means removably disposed within said container for holding a scent;

(c) means associated with said container for releasably retaining said scent holding means within said container, said retaining means including a plurality of retaining members projecting from said container first end adjacent said opening in a direction towards said second end, each of said retaining members having a free end terminating at a location intermediate said container first and second ends, said scent holding means being a sponge-like body of absorbent material capable of holding a scent, said body being disposed between and engaged by said retaining member ends and said container second end, said body of material being flexible whereby said body may be inserted into and removed from said container through said first end opening;

(d) a cover constructed and designed to enclose either of said container ends;

(e) means for securing said cover to either said first end for sealing said container to prevent loss of the scent carried therein, or to said second end to permit the scent to be released from said container through said first end opening, said securing means including a pair of mating surfaces, one of said mating surfaces being located on said cover and the other mating surface being located on said container, each of said mating surfaces including raised surface portions,

said cover having a generally circular cross-section, a solid end, an open end and a continuous side extending therebetween, said side having an inner surface and an outer surface, said inner surface containing said respective raised surface portions, said cover raised surface portions being designed to be threaded upon said respective raised surface portions on said container side wall in a direction originating from either of said container ends; and

(f) means disposed on said cover solid end for attaching said device to a separate object.

4,374,572
METHOD AND COMPOSITION TO INHIBIT STAINING OF PORCELAIN SURFACES BY MANGANESE

Robert H. Callicott, West Chester, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

Continuation of Ser. No. 28,613, Apr. 9, 1979, abandoned. This application Feb. 17, 1981, Ser. No. 234,535
The portion of the term of this patent subsequent to Nov. 24, 1999, has been disclaimed.
Int. Cl.³ C02B 5/06; C11D 3/37, 17/04; E03D 9/02
U.S. Cl. 239—37 8 Claims

1. A method of inhibiting the staining of surfaces in contact with water which contains at least about 50 ppb of manganese II ions and an oxidizing agent which would oxidize said manganese (II) ions to form the staining manganese (IV) ions; said method comprising the step of independently dispensing into said water which contains said manganese (II) ions and said oxidizing agent, from about 0.1 ppm to about 10 ppm of copolymers of alternating ethylene and maleic anhydride having a molecular weight between about 20,000 and 100,000 atomic mass units.

6. In an integrated toilet tank dispenser with independent first and second dispensing means, wherein said first dispensing means is adapted to dispense ingredients which provide at least 3 ppm of available chlorine to the water of a toilet bowl, and wherein said second dispensing means is adapted to receive a cake of second ingredients and to disperse a sufficient portion of said second ingredients to a toilet to provide 2 ppm to 30 ppm of said second ingredients to a toilet bowl, the improvement wherein said cake of second ingredients is a solid cake comprising:

A. 5% to 30% of a material adapted to inhibit manganese staining, consisting essentially of copolymers of alternating ethylene and maleic acid anhydride having a molecular weight between about 20,000 and 100,000 atomic mass units;

B. 50% to 90% of a water-soluble surfactant selected from the group consisting of the hypochlorite-stable alkyl sulfates and paraffin sulfonates; and

C. 0% to 45% of optional ingredients selected from the group consisting of dyes, perfumes, water-soluble salts, and mixtures thereof;

wherein said cake of second ingredients is essentially free of manganese (II) oxidating material and phosphate esters.

4,374,573
APPARATUS FOR SHREDDING RUBBER TIRES AND OTHER WASTE MATERIALS

Michael W. Rouse, 2412 Tipperary Ct., West Linn, Oreg. 97068, and Robert L. Thelen, 509 N. 3rd, Woodburn, Oreg. 97071

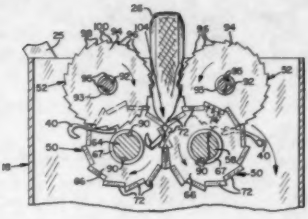
Continuation-in-part of Ser. No. 37,360, May 8, 1979, abandoned. This application Aug. 21, 1980, Ser. No. 179,993
Int. Cl.³ B02C 18/18, 18/22
U.S. Cl. 241—101.7 18 Claims

1. Apparatus for comminuting scrap material, including reinforced resilient materials such as vehicle tires, comprising:

(a) cutting means including an intermeshed pair of rotatably mounted generally cylindrical cutter rolls, said intermeshed cutter rolls having an infeed side, each of said cutter rolls including a plurality of axially spaced apart cutter discs, said cutter discs having opposed side surfaces and having planar peripheral surfaces which meet said side surfaces defining cutting edges at the intersections therebetween, said cutter rolls being intermeshed with one another so that a plurality of said cutter discs of each of said cutter rolls extend into the interstices between the cutter discs of the other said cutter rolls, with a side of

each of said cutter discs of one of said cutter rolls overlapping and being closely adjacent to a side of one of said cutter discs of the other of said cutter rolls, for cooperatively forcing respective portions of said scrap material into the interstices between neighboring ones of the cutter discs of the opposite one of said cutter rolls, thereby shearing said scrap material into pieces having respective dimensions corresponding to the spacing between neighboring ones of the cutter discs on one of said cutter rolls;

(b) feeder-stripper means located on said infeed side of said cutter rolls, for forcing said scrap material into a position on said infeed side where said cutter rolls can engage said scrap material, and for thereafter stripping said pieces of said scrap material from said interstices between said cutter discs, said feeder-stripper means comprising a pair of generally cylindrical feeder-stripper rolls, each of said feeder-stripper rolls including a plurality of feeder-stripper discs, said feeder-stripper rolls being radially spaced apart from one another, defining a space through which to feed said scrap material toward said intermeshed cutter rolls, and each of said feeder-stripper rolls being intermeshed with a respective one of said cutter rolls, with a respective one of said feeder-stripper discs extending radially into each of said interstices between the cutter discs of each cutter roll to a depth sufficient for forcing substantially all said pieces of scrap material from said interstices; and



(c) drive means for counterrotating said intermeshed cutter rolls about their respective axes so that the peripheral surfaces of respective cutter discs of said cutter roll move toward one another on said infeed side, and for rotating each of said feeder-stripper rolls in the same direction as the respective one of said cutter rolls with which it is intermeshed.

4,374,574

CONDIMENT GRINDER-DISPENSER

Tom David, P.O. Box 541, Nantucket Island, Mass. 02554

Filed Nov. 3, 1980, Ser. No. 203,679

Int. Cl.³ A47J *42/00*; B02C *13/30*

U.S. Cl. 241—169.1 **8 Claims**

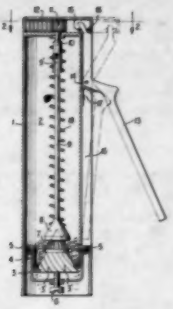
1. A hand-held and hand-operated condiment grinder dispenser comprising in combination:

(a) a housing adapted to be held by an encircling grip of the user's hand;

(b) a grinding mechanism mounted in said housing and including a rotary grinding wheel and a skirt surrounding said grinding wheel and cooperating therewith for comminuting and dispensing condiment upon rotation of said grinding wheel in a sole, operative direction;

(c) an overrunning clutch mounted in said housing and having a driven part connected to said grinding wheel for rotating therewith as a unit; said clutch further having a driving part rotatable in an operative direction and in an opposite, inoperative direction; said driving part transmitting an operating torque to said driven part solely when said driving part rotates in said operative direction thereof; the direction of said operating torque coinciding with said operative direction of said grinding wheel;

(d) an operating lever mounted on said housing to be movable in a forward direction and in a return direction; said operating lever being coupled to said driving part of said clutch for rotating said driving part in the operative direction thereof when said operating lever moves in said forward direction and for rotating said driving part in the inoperative direction thereof when said operating lever moves in said return direction; said operating lever being positioned with respect to said housing such that said operating lever being included in the encircling grip of the user's hand for effecting said forward motion; and



(e) a spring urging said operating lever in the return direction, whereby upon release of said operating lever by the user's hand after a motion of said operating lever in the forward direction, said spring moves said operative lever in the return direction and further moves said driving part of said clutch in the inoperative direction relative to said driven part of said clutch and relative to said grinding wheel of said grinding mechanism.

4,374,575

WINDING MACHINE FOR CONTINUOUSLY WINDING STRIPS OF WEB MATERIAL INTO ROLLS

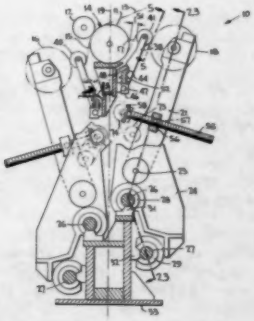
Rolf Lerch, Darmstadt-Eberstadt, and Franz Held, Gross-Zimmern, both of Fed. Rep. of Germany, assignors to Maschinenfabrik Goebel GmbH, Darmstadt, Fed. Rep. of Germany

Filed Dec. 5, 1980, Ser. No. 213,485

Claims priority, application Fed. Rep. of Germany, Dec. 5, 1979, 2948881

Int. Cl.³ B65H *75/02*

U.S. Cl. 242—56.5 **4 Claims**



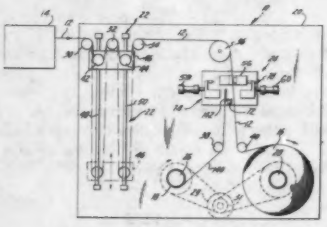
1. In a winding machine for winding up a plurality of strips cut from an elongated web after making initial contact with a main drum, the strips being looped partially around the main drum and being wound into a plurality of rewind rolls, contact

drums respectively bearing against said rolls, means maintaining said contact drums out of contact with said main drum during build-up of said rolls so as to define predetermined gaps with said main drum, and means for sensing the position of said contact drums relative to said main drum, the improvement wherein said maintaining means comprise spaced holders mounted for movement along an axis parallel to the central axis of said main drum, pairs of first support arms mounted on said holders for supporting said rolls for pivotal movement about pivotal axes lying parallel to said central axis, threaded elongated spindles, means pivotally mounted on said arms and threadedly engaging said spindles, means for rotating said spindles together for effecting simultaneous movement of said rolls about said pivotal axes as said means engaging said spindles threads therealong, and second arms supporting said contact drums, said second arms being mounted for pivotal movement about axes disposed at a side of said main drum opposite the side at which initial contact is made by said web.

4,374,576
SEMI-AUTOMATIC ROLL WINDING MACHINE

Ralph L. Ryan, East Hanover, N.J., assignor to Compensating Tension Controls, Inc., West Caldwell, N.J.

Filed Feb. 2, 1981, Ser. No. 230,634
Int. Cl.³ B65H *19/16, 19/08*
U.S. Cl. 242—58.4 7 Claims



1. A roll winding machine for receiving a continuously running web from a source thereof and winding the web on a core to from a web roll, the machine comprising

(a) support means;

(b) a web accumulator supported means for receiving the continuously running web to be wound from the source thereof;

(c) a splicing device supported by the support means for receiving the web to be wound from the web accumulator;

(d) a first driven arbor supported for rotation by the support means and carrying the core upon which the web running from the splicing device is to be wound to form a first web roll;

(e) a second driven arbor supported for rotation by the support means adjacent the first arbor and carrying a second core having affixed thereto one end of a leader web and upon which a second web roll is to be wound;

(f) motor means for alternately rotatively driving said first and second arbors;

(g) said splicing device having

(g-1) a splicing carriage means for receiving and holding the distal end portion of said leader web and including cutting means for severing the running web to be wound so that a severed end portion is provided on the first web roll, and on the running web to be wound into said second web roll;

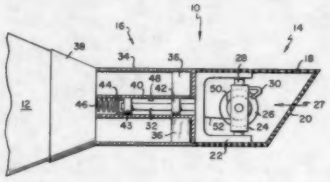
(g-2) web clamping means operative in one position to grip and prevent movement of the running web and, in another position, to release both the severed end portion of the first web roll and the running web to be wound into said second web roll;

(g-3) said splicing carriage means including the cutting means being operative to cut the running web to be wound after it is wound to the extent predetermined on said first web roll and affix the severed end portion of the running web to be wound into said second web roll to the distal end portion of the leader web so that the running web is capable of being wound on the second core supported on the second arbor upon movement of the clamping means to a position to release the running web and the leader connected to said second core.

4,374,577
ADAPTER ASSEMBLY FOR FLAT TRAJECTORY FLIGHT

Michael A. Brown, Columbia, and Chris A. Kalivretenos, Hyattsville, both of Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jan. 14, 1976, Ser. No. 649,615
Int. Cl.³ F41G *7/00*
U.S. Cl. 244—3.21 20 Claims



1. An adapter assembly attachable to the nose portion of an unguided projectile to provide the projectile with a substantially flat-trajectory flight capability comprising:

an aerodynamic lift-generating section including both a lift-producing device and a separate stabilizing mechanism directly coupled to said device;

a separate and distinct actuator housing attachable to the nose portion of a projectile;

means for rotationally coupling said lift-generating section to said actuator housing; and

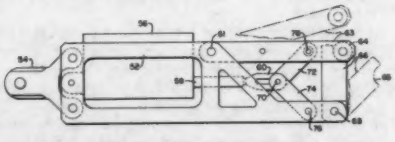
inertia means within said actuator housing to initiate operation of said stabilizing mechanism,

said adapter assembly producing a stabilized, vertically-oriented lift to counter the projectile weight.

4,374,578
AERIAL CARGO DELIVERY SYSTEM

Eddie D. Banks, Renton, Wash., assignor to The Boeing Company, Seattle, Wash.

Filed Jul. 18, 1980, Ser. No. 170,566
Int. Cl.³ B64D *1/12*
U.S. Cl. 244—137 R 2 Claims



1. In an aerial cargo delivery system of the type including strap means for securing cargo bundles to the floor of an aircraft, the improvement comprising a gate release assembly for selectively releasing said strap means to permit said bundles to pass through a rear cargo opening in the aircraft, said gate release assembly comprising a pair of spaced apart plates carrying therebetween a first pair of link arms pivotally connected

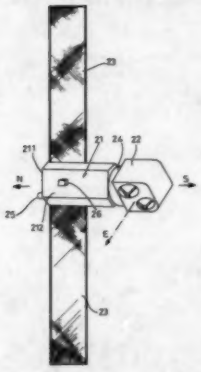
to said plates at one of their ends and carrying a roller therebetween at their other ends, an actuator carried between said plates, a latch pivotally connected at one end between said plates to move between cargo restraining and cargo releasing positions and carrying a recess at the other end, said recess engaging said roller when said latch is in said cargo restraining position; a second pair of link arms pivotally connected at one end thereof to each other and to said actuator, one arm of said second pair being pivotally connected to said first pair of link arms at its other end and the other arm of said second pair being pivotally connected to said plates at its other end, whereby said actuator will, upon actuation, cause said second pair of link arms to move said first pair of link arms about their pivot which will in turn move said roller out of said recess and permit said latch to move said cargo releasing position.

4,374,579

SPACECRAFT CONFIGURATION PERMITTING A CONTINUOUS THREE-AXES ATTITUDE CONTROL

Udo Renner, Leiden, and A. Werner Prenkschat, Noordwijk, both of Netherlands, assignors to European Space Agency, France

Filed Dec. 16, 1980, Ser. No. 217,165
Claims priority, application France, Dec. 27, 1979, 79 31779
Int. Cl.³ B64G 1/10
U.S. Cl. 244—158 R **2 Claims**



1. A spacecraft configuration comprising a service module, said service module having first sensor means arranged to point to a first inertially fixed target and second sensor means arranged to point to a second inertially fixed target, said first and second sensor means providing 3-axes attitude control information for stabilization of the spacecraft; solar arrays rigidly attached to the service module such that when they are deployed in orbital configuration, they leave the field of view of said first and second sensor means unobstructed; rotary interface means having first attachment means on one face for attachment to a first face of the service module and having second attachment means on its opposite face; and a payload module attached to said second attachment means on the rotary interface means; said rotary interface means being arranged to permit said payload module to continuously point to the earth.

4,374,580

SECURING DEVICE

Gerald G. Minor, 8800 N. Henley, Oklahoma City, Okla. 73113

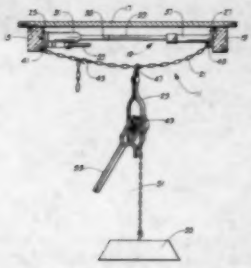
Filed Jun. 16, 1980, Ser. No. 159,466
Int. Cl.³ A47H 1/10
U.S. Cl. 248—317 **5 Claims**

1. A device for securing objects with respect to spaced apart first and second pierceable and opposed stationary surfaces comprising:

a first piercing engagement member for engaging and piercing said first stationary surface to provide a first base secured against movement along said first stationary surface;

a second piercing engagement member for engaging and piercing said second stationary surface to provide a second base secured against movement along said second stationary surface, said first and second engagement members being disposed along a common axis;

spreading bar means connected to said first and second engagement members for relatively spreading said first and second engagement members to securely pierce and press each of said engagement members against a respective one of said first and second stationary surfaces



wherein said spreading bar means includes a jack for spreading said first and second engagement members into said first and second stationary surfaces and providing a compression load bearing support between said first and second engagement members; and

flexible suspension means extending in a single flexible span from said first to said second engagement member and attached thereto for suspending and securing an object with respect to said first and second engagement members adjacent to said first and second stationary surfaces, said flexible suspension means flexibly bearing the load of an object such that the load of an object suspended and secured to said suspension means is received as a compression load on said spreading bar means and as a load urging said first and second engagement members to move along said first and second stationary surfaces.

4,374,581

SUPPORT UNIT

Alexander D. Karapita, 38 Robinter Dr., Willowdale, Ontario, Canada M2M 3R2

Filed Jul. 9, 1979, Ser. No. 55,526
Int. Cl.³ B42F 13/00
U.S. Cl. 248—337 **10 Claims**

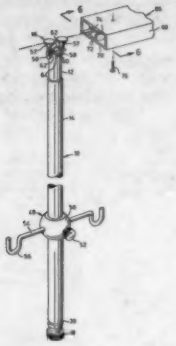
1. A suspension support unit comprising:

a vertical cylinder and means at the upper end of the cylinder for suspension thereof;

brake means slidable in the cylincder and having grip means at the lower end thereof, the brake means comprising a pair of spaced collars slidably mounted on a shaft coxially in the cylinder, the shaft projecting below the cylinder and carrying a grip at the lower end thereof, the shaft being axially movable to move the collars selectively towards and away from one another, the collars being bevelled at their outer opposing edges to form a raceway, the angle of the bevelled outer edge of each collar being between 35° and 70° with respect to a transverse plane of the cylinder normal to its axis and the angles being equal, a plurality of spherical bearing being located in the race-

way and movable, on moving the collars one towards the other, outwardly to bear against the cylinder and lock the brake means with respect to vertical movement therein with the brake means and the shaft being jointly rotatable about the axis of the shaft; and

means connected with the brake means to support an object, said support means comprising an outer sleeve concentric with the cylinder, the outer sleeve being slidable on the



cylinder and mounted on the grip, and means projecting outwardly from the sleeve to support an object;

the collars being freely slidable on a shaft, stop means on the upper end of the shaft, and a tube concentric with the shaft, the lowermost of the collars bearing against the upper end of the tube and the lower end of the tube bearing against a plug in the lower end of the sleeve, the shaft being freely slidable in the plug through an aperture therein and engaging the grip beneath the plug.

4,374,582

COMPRESSED AIR-ACTUATED VALVE MEANS

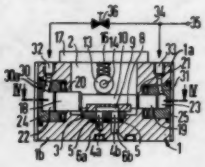
Guido Heyneman, Knokke, Belgium, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Feb. 25, 1980, Ser. No. 124,360

Claims priority, application Fed. Rep. of Germany, Mar. 19, 1979, 2910752

Int. Cl.³ F16K *31/122*

U.S. Cl. 251—62 **3 Claims**



1. In a compressed air-actuated valve means for attachment to various devices, such as useful in chemical analyses, wherein a piston means actuates a slide member in the piston thrust direction and said slide member linearly glides on a base member having at least two spaced-apart apertures extending approximately perpendicularly to the gliding surface of said slide member, said apertures being connectable with one another on one side of said base member via at least one groove correspondingly arranged on a surface of said slide member and being connectable on the other side of said base member with intake and discharge nozzles, wherein the improvement comprises:

said slide member (8) is interchangeably housed is a slide mount (10), said base comprises a pressure-plate (3) which is interchangeably housed in a valve housing (1), said apertures (*4a* . . . *4f*) in said pressure-plate member (3) are connected via sealing rings (5) at the surface of said pressure-plate member (3) facing away from said slide member (8) with fluid-passageways (*6a*, *6b*, 37) for connections external of said housing (1), at least one of such passageways (37) being directly connected with an open-bottom container (41) and being surround by a concentrically positioned groove (38) having a sealing ring (39) therein for supporting the open bottom of said container (41), said container (41) being provided with a beaded-edge (40) about the periphery of said open bottom thereof and which is adapted for positioning on said sealing ring (39), and an elastic ring (42) having an opening approximately corresponding to said beaded-edge (40) is snapped about said beaded-edge and attached to a surface of said housing.

4,374,583

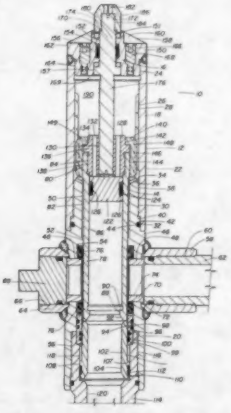
SLEEVE VALVE

Burchus Q. Barrington, Duncan, Okla., assignor to Halliburton Company, Duncan, Okla.

Filed Jan. 15, 1981, Ser. No. 225,163

Int. Cl.³ F16K *31/50, 3/36*

U.S. Cl. 251—324 **13 Claims**



1. A valve for controlling the flow of fluid comprising:

valve body housing means having an inlet and an outlet thereto;

sleeve assembly means retained within the valve body housing means, the sleeve assembly means comprising:

annular sliding flow sleeve means slidably retained within the valve body housing;

outlet sleeve means abutting the annular sliding flow sleeve means and slidably, sealingly engaging the interior of the valve body housing means;

seal sleeve means sealingly engaging the valve body housing means and slidably, sealingly engaging the outlet sleeve means;

sleeve plug means secured to one end of the annular sliding flow sleeve means;

sleeve cap means secured to the annular sliding flow sleeve means; and

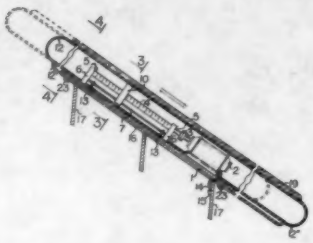
sliding piston means slidably, sealingly engaging the interior of the annular sliding flow sleeve means; and

actuation assembly means secured to the valve body housing means and secured to the sleeve assembly means.

4,374,584
HANDRAIL

Naum Pokhis, and Yakov Pokhis, both of 1850 No. Whitley Ave. # 317, Hollywood, Calif. 90028

Filed Dec. 22, 1978, Ser. No. 962,986
Int. Cl.³ E04H 17/00
U.S. Cl. 256—1 12 Claims



1. A handrail comprising an elongated stationary base element; a support element adapted to be grasped by and support a user, said support element being movable relative to said base member in a direction of elongation thereof; means for moving said support element relative to said base element, said moving means being means for reciprocating said support element relative to said base element and including a motor and transmission means which is driven by said motor and engaged with said support element so as to reciprocate the latter, said motor being reversible, and said transmission means including a screw member rotated by said motor, and a nut member which is connected with said support element and through which said screw extends so that when said motor rotates said screw in two opposite directions said nut member and thereby said support element connected thereto reciprocate relative to said base member; and a guiding member which is immovably connected to said base element and extends through said nut member in the direction of elongation whereby said nut member is guided by said guiding member during the reciprocation.

4,374,585
APPARATUS FOR THE DIRECT REDUCTION OF IRON ORES

Gero Papst, Buxtehude; Günther Röpke, Hamburg, and Hans J. Töpfer, Gifhorn, all of Fed. Rep. of Germany, assignors to Hamburger Stahlwerke GmbH, Fed. Rep. of Germany

Division of Ser. No. 18,977, Mar. 9, 1979, Pat. No. 4,248,623.
This application Aug. 11, 1980, Ser. No. 176,894
Claims priority, application Fed. Rep. of Germany, Mar. 11, 1978, 2810657; Mar. 11, 1978, 2810701
Int. Cl.³ F27B 1/16
U.S. Cl. 266—81 9 Claims

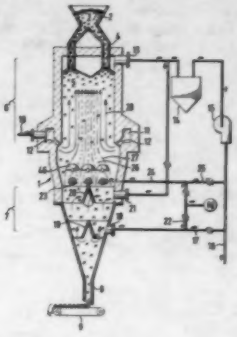
1. Apparatus for the direct reduction of iron ores characterized by:

(a) a reduction shaft furnace (1) having an upper opening (2) for the introduction of iron ores (3) and a lower opening (8) for the discharge of sponge iron product;

(b) a reduction zone (6) at whose lower end hot gas inlet passages (12) open in to the shaft furnace, which gas passages are arranged about the whole circumference of said furnace and are connected to a gas feed line (10) for hot reduction gas, and at whose upper end there is provided gas outlet (13) for waste gas;

(c) a cooling zone (7) below the reduction zone, with a lower inlet (18) and an upper outlet (21) for the cooling gas;

(d) a plurality of horizontally oriented gas distributor pipes (23) in said furnace beneath hot gas inlet (12) and above the cooling zone (7), said pipes (23) communicating with a source of hydrocarbon gas; and

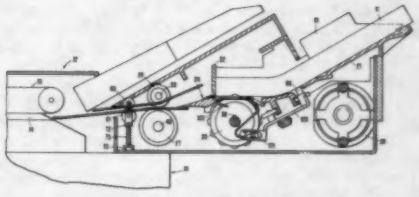


(e) a means (31 to 36) whereby the supply of hot reduction gas to the gas inlet passages (12) can be sector-wise interrupted or reduced.

4,374,586
DOCUMENT FEED SHEET ALIGNER

Richard A. Lamos, Delrey Beach, Fla., and Alfonso A. Rosati, Longmont, Colo., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 19, 1980, Ser. No. 218,139
Int. Cl.³ B65H 3/06, 9/04
U.S. Cl. 271—37 21 Claims



21. In a document feeder having shingler means for shingling documents from a stack, the improvement comprising:

a bin for supporting a stack of documents, said bin having at least one reference edge against which a stack of documents is registered;

an alignment edge connected to the reference edge and positioned therefrom in the direction of forward sheet motion, said alignment edge being laterally offset from said reference edge, into the path of forward sheet motion;

a sheet feeding means, including the shingler means disposed to shingle sheets from the bottom of the stack; and

a sheet separator means disposed to accept and feed individually shingled sheets in seriatim and to coact with the sheet feeding means to feed individual sheets in a clockwise direction until the edge of the sheet adjacent to the alignment edge contacts said edge for lateral alignment prior to delivery into a utilization device.

4,374,587

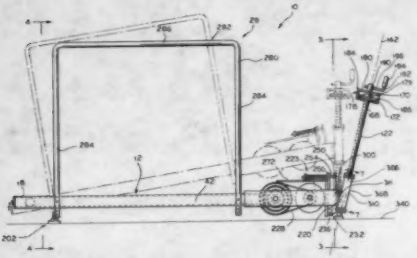
EXERCISE TREADMILL

Ralph Ogden, 1304 Fisher St., Munster, Ind. 46321

Continuation-in-part of Ser. No. 175,516, Aug. 5, 1980, Pat. No. 4,344,616. This application Jan. 21, 1981, Ser. No. 226,765

Int. Cl.³ A63B *23/06*

U.S. Cl. 272—69 **12 Claims**



1. In an exercise treadmill including a generally planar slider bed having a head end, a tail end, and a top surfacing extending substantially between said ends thereof, an endless belt trained over said slider bed defining an upper belt run overlying said slider bed top surfacing and a lower run passing under said slider bed, means for driving said belt for movement of said belt upper run from said head end to said tail end of said slider bed, said slider bed having secured to same adjacent said head end thereof a cross member extending transversely thereof, a pair of screw members threadedly mounted in said cross member in spaced apart relation and for rotation about upright axes that are in parallelism and that are inclined at like acute angles off perpendicular relationship relative to the plane of said slider bed, with each of said screw members having a foot journalled thereof, and means for simultaneously rotating said screw members in the same direction in forward and reverse directions for threading said cross member longitudinally of said screw members to raise and lower said slider bed head end,

the improvement wherein:

said cross member includes a pair of nut assemblies, with one of the screw members being threadedly received in one of said nut assemblies and the other of the screw members being threadedly received in the other of said nut assemblies,

said nut assemblies each comprising;

a tubular member of polygonal transverse cross-sectional configuration having a first nut member keyed to the lower end of same and a second nut member keyed to the upper end of same,

with the screw member of each nut assembly being threadedly engaged by said nut members thereof,

said second nut members being mounted relatively to its tubular member for lost motion longitudinally thereof.

4,374,588

ISOKINETIC EXERCISE DEVICE WITH SPEED CONTROL

Roger Ruggles, Blue Springs, Mo., assignor to Isokinetic Sales Co., Independence, Mo.

Filed Dec. 15, 1980, Ser. No. 216,326

Int. Cl.³ A63B *21/32*

U.S. Cl. 272—132 **9 Claims**

1. An exercise device comprising:

a first plate member;

a second plate member;

a shaft member extending between said first and second members and presenting a common axis of rotation;

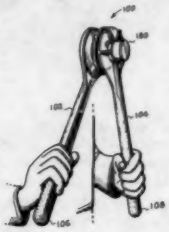
handle means on at least one of said plate members for providing a user rotation thereto;

a floating plate interposed between said plate members in axial and rotatable movement relative to said shaft;

a series of angularly spaced and paired arcuate raceways positioned adjacent the opposing faces of one of said plate members and said floating plate, each raceway of said pair of raceways aligned in a generally opposed relationship therebetween;

ball means movable along said paired raceways;

means for captivating said ball means between said paired raceways at a selectable point of contact therealong, said captivation providing a driving connection between said floating plate and said one plate member for transmittal of forces produced by said user rotation;



brake means operably associated with said floating plate and one of said plate members and positioned in a force communicating relationship with said driving connection in a manner to be operably responsive to said transmitted forces, said operable response retarding said user rotation of at least said plate member; and

means for changing the angle of contact of said captivated ball means with said paired raceways as presented by said raceways having a generally non-linear slope profile between the opposed ends thereof, said respective angle of contact changing said relationship between said brake means and said driving connection to effect the degree of said brake means operable response and said retardation to said user rotation.

4,374,589

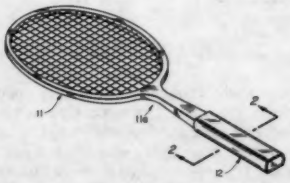
HANDLE FOR TENNIS RACKET WITH ANTI-TORSION GRIP PORTION

Gordon E. Strickland, 434 Guinda St., Palo Alto, Calif. 94301

Continuation of Ser. No. 934,944, Aug. 18, 1978, abandoned, which is a division of Ser. No. 795,195, May 9, 1977, Pat. No. 4,149,721. This application Feb. 25, 1980, Ser. No. 124,438

Int. Cl.³ A63B *49/08*

U.S. Cl. 273—75 **4 Claims**



1. In a tennis racket having a head lying in a flat plane, and a handle having a grip portion attached to said head by a neck portion, said grip portion having a geometric center when viewed in cross section, the improvement wherein said grip portion comprises

a pair of flat surfaces disposed in parallel relationship relative to each other and to said plane, each of said flat

surfaces being subtended by an obtuse angle having its vertex at said geometric center, and

a pair of at least substantially arcuate surfaces disposed transversely relative to said flat surfaces and said plane with each of said arcuate surfaces being subtended by an acute angle having its vertex at said geometric center and intersecting each of said flat surfaces to define a perceptible edge at the juncture thereof, each of said arcuate surfaces being defined by a radius having its center at said geometric center and having a length of about 0.75 inches.

4,374,590

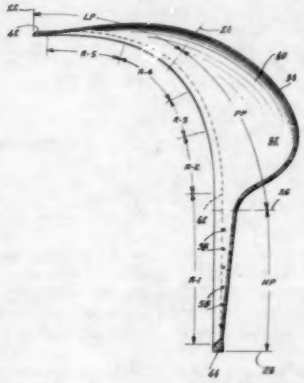
MASS-PRODUCED MOLDED PLASTIC CESTA

Edward A. Everlith, 78 Alcolese Rd., and Jose J. Echaburu, 101 Bassick Rd., both of Trumbull, Conn. 06611

Filed Oct. 10, 1981, Ser. No. 319,948

Int. Cl.³ A63B 59/02

U.S. Cl. 273—326 **15 Claims**



1. A mass-produced hand-held plastic cesta for catching and holding a ball and for discharging a ball therefrom in a controlled directional manner toward a playing surface, comprising:

A. a pocket portion having a recess for catching and holding the ball, said recess having an arcuate shaped bottom wall and a pair of parallel and oppositely disposed walls extending upwardly from said bottom wall;

B. a handle portion at one end of the cesta and contiguous to the pocket portion and having a substantially flat surface;

C. a ball launching portion contiguous with the pocket portion and disposed at the other end of the cesta, said ball launching portion having a substantially arcuate shaped wall contiguous to the pocket portion and being substantially flat at the end thereof to form a ball launching tip from whence the ball is discharged from the cesta, said bottom wall of the recess and said arcuate wall of the launching tip portion defining a path of travel for the ball as it leaves the recess for discharge from the launching tip; and

D. a rib formed along the rim of the cesta, said cesta being formed of plastic material having a characteristic wherein hardness is a function of thickness, said walls defining the path of travel of the ball within the cesta being of less thickness than the wall of the handle portion and said rib having a thickness greater than the other portions of the cesta.

4,374,591

STRUT-TYPE STEERING SKI SUSPENSION FOR SNOWMOBILES

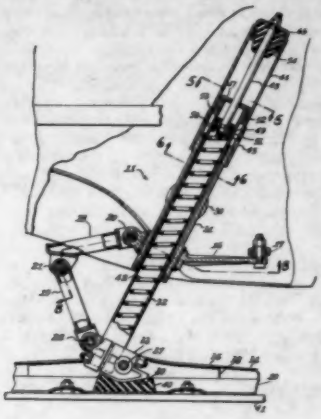
Takashi Kobayashi, Hamamatsu, Japan, assignor to Yamaha Hatsudoki Kabushiki Kaisha, Iwata, Japan

Filed Jan. 18, 1980, Ser. No. 160,471

Claims priority, application Japan, Jan. 27, 1979, 54-80240

Int. Cl.³ B62B 17/04

U.S. Cl. 280—21 R **8 Claims**



1. In a steering ski suspension for a snowmobile, said snowmobile having a frame, said suspension including a stationary cylinder fixed to said frame a movable cylinder slidably mounted in said stationary cylinder, and a ski mounted to the lower end of said movable cylinder so as to turn therewith, the improvement comprising: a cap member fixed to the upper end of said stationary cylinder; and coil spring bias means entirely confined within one of said cylinders and compressively opposed between a lower portion of said movable cylinder and said cap member or structure rigidly attached to said cap member, said movable cylinder being rotatably and axially movable in said stationary cylinder whereby to make the ski steerable and to provide an elastic suspension for said frame.

4,374,592

VEHICLE TRANSPORTER

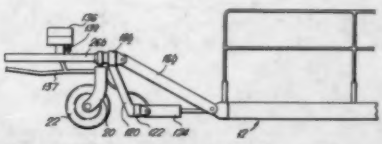
John Geary, Olney, and David S. Johnson, Nr. Leighton Buzzard, both of England, assignors to Motorhouse Hire Limited, Buckinghamshire, England

Filed Mar. 11, 1980, Ser. No. 129,358

Claims priority, application United Kingdom, Mar. 12, 1979, 7908619

Int. Cl.³ B60D 7/02

U.S. Cl. 280—476 R **6 Claims**



1. A vehicle transporter, providing a support structure for supporting the wheels of a vehicle to be transported, said structure comprising a platform substantially open at a rear end thereof and having two pairs of transversely spaced-apart parallel beams extending longitudinally of the vehicle, a wheel support surface member extending between each of said pairs

of beams below the level of the upper surfaces of the beams, and affording a supporting surface for the wheels of the vehicle to be carried, said pairs of beams, together with corresponding surface members extending therebetween, forming a pair of parallel tracks for supporting the vehicle to be transported, said structure being mounted on road-engaging wheel means, said wheel means including wheels disposed intermediate front and rear ends of said tracks, said road-engaging wheels lying entirely on the outer sides of the outermost ones of the beams forming the two supporting tracks; and another structure at the front of said platform rising above the level of the platform, and pivotally connected with the platform by limbs pivotable with respect to the platform about a first transverse horizontal axis and pivotable with respect to said fore-structure about a second transverse horizontal axis, said fore-structure having ground-engaging wheels, and extensible and retractable means being provided connected with said platform at a point substantially on said first axis and with said fore-structure at a point spaced from said axis, whereby if the angle of said fore-structure with respect to the road surface is kept constant, the level of the front of said platform can be adjusted by adjustment of said extensible and retractable means.

4,374,593

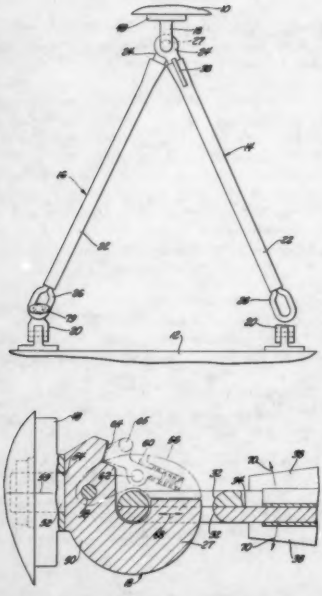
TOWBAR ASSEMBLY

Roger R. Smith, Lapeer, and James L. Celentino, Oakland, both of Mich., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed May 22, 1981, Ser. No. 266,223

Int. Cl.³ B60D *1/14*

U.S. Cl. 280—491 E **7 Claims**



1. A towbar comprising an elongated tube, a front eye member affixed to one end of the tube, a rear eye member affixed to the other end of the tube; said front eye member comprising a flat plate having a spade portion extending into the tube, and a doughnut portion located outside the tube; said doughnut portion having a circular opening therethrough defining the front eye; the front end area of the tube being partially flattened so that its interior surfaces facially engage the opposite major faces of the spade portion; and a reinforcement gusset extending along one major face of said plate and partially flattened area of the tube to rigidify the tube-eye member connection against bending in a plane normal to the eye member plate.

4,374,594

EMERGENCY BUCKLE DEVICE

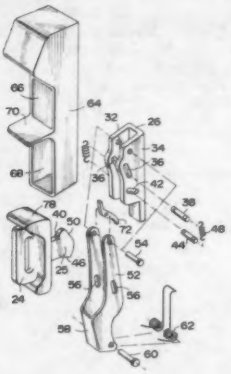
Takashi Kawaharazaki, Aichi, Japan, assignor to Kabushiki-Kaisha Tokai-Rika-Denki-Seisakusho, Aichi, Japan

Filed Aug. 15, 1980, Ser. No. 178,595

Claims priority, application Japan, Aug. 20, 1979, 54-114934[U]

Int. Cl.³ B60R *21/10*

U.S. Cl. 280—801 **5 Claims**



1. An emergency buckle device for use in a seatbelt system wherein a restraining webbing is automatically fastened to an occupant upon entering a vehicle and with which the occupant can manually unfasten the webbing, comprising:

(a) a main body having an opening and being secured to a door of the vehicle;

(b) a tongue plate engaged with an outer end of the occupant restraining webbing and having an insert portion manually inserted in a first direction through said opening into said main body;

(c) a release pin in said main body extending substantially perpendicular to said insert portion in said main body and moveable a predetermined distance substantially in the first direction;

(d) a lock pin in said main body extending parallel to said release pin and moveable a predetermined distance substantially perpendicular to the first direction, said lock pin being moved by said insert portion away from said release pin to form therebetween a path for receiving said insert portion when said insert portion is manually inserted through said opening into said main body;

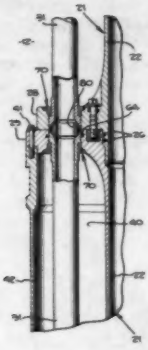
(e) a resilient member between said lock pin and said release pin to bias both said pins toward each other so that both said pins secure the insert portion after the insert portion passes through the path between both said pins; and

(f) a release plate pivoted at one end thereof to said main body by a pin extending parallel to said lock pin and said release pin, said release plate being engaged at its other end with said release pin and having a press portion between its ends, said press portion being accessible to the occupant so that said release pin can be manually moved away from the lock pin to thereby release said insert portion from said main body whereby said insert portion can be manually removed from said body in a second direction opposite to said first direction.

4,374,595
METAL TO METAL SEALED JOINT FOR TUBING STRING

Bruce J. Watkins, Palos Verdes Estates, Calif., assignor to Hughes Tool Company, Houston, Tex.

Filed Jun. 16, 1980, Ser. No. 159,754
Int. Cl.³ F16L 39/00
U.S. Cl. 285—137 A 15 Claims



1. In a subsea well apparatus having axially-adjacent riser conduit sections connected at end surfaces of their respective mating flanges, each conduit section having opposite end flanges each having axially-aligned tubing string-receiving orifices, and a tubing string section having its opposite ends within said tubing string-receiving orifices, the improvement comprising the provision of:

means for receiving an axially-outward force at each end of said tubing string section; and

adjustable means for exerting an axially-outward force on said force-receiving means at each end of said tubing string section to adjust the axial position of the ends of the tubing string section relative each of said opposite end flanges.

4,374,596
PIPE-FORM CONNECTOR FOR CABLE DUCTS

Josef Schlemmer, and Adolf Konig, both of Munich, Fed. Rep. of Germany, assignors to Josef Schlemmer GmbH, Munich, Fed. Rep. of Germany

Filed Mar. 23, 1979, Ser. No. 23,328
Claims priority, application Fed. Rep. of Germany, Jun. 30, 1978, 2828893
Int. Cl.³ F16L 37/08
U.S. Cl. 285—305 4 Claims

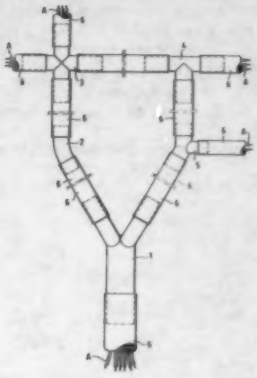
1. Pipe-form connector for cable duct ends comprising longitudinally split shell portions of the connector with complementary elongated joint elements of a direct push and pull assemblable and disassemblable type running substantially the full lengths of such elements and arranged parallel to longitudinal axes of the connector, the shells being assemblable at such edges and holdable in assembled position by the joint elements to form sections uniformly corresponding to cable duct ends and internally insertable into the duct ends to be connected with a snug fit but removable therefrom,

and being constructed of substantially the same form and size of said duct ends, but being sufficiently smaller than the duct ends only to the extent necessary for snug-fitting insertion therein to form interconnecting conduits between the various duct ends, substantially as extensions thereof, and

means to prevent longitudinal slippage between joint elements and to cause yielding of the connector as one of its ends enters a duct end and to permit length equilibration,

and further comprising exterior end catches on its ends to lock within corrugations or like recesses of a cable duct end by engaging within them,

and wherein the catch is supplemented by slots in front of



and behind it with the slot behind being wider than the slot in front to provide easier yielding on insertion of the pipe form connector than upon withdrawal from a cable duct end.

4,374,597
REMOTE CONTROL ARRANGEMENT

Haruo Mochida, Yokohama, Japan, assignor to Nissan Motor Co., Ltd., Yokohama, Japan

Filed Jan. 5, 1981, Ser. No. 222,454
Claims priority, application Japan, Jan. 10, 1980, 55-1621
Int. Cl.³ E05B 53/00; G05G 9/02
U.S. Cl. 292—8 4 Claims

1. A remote control arrangement comprising:

a first mechanism having a stationary member and a movable member for actuating said first mechanism;

a second mechanism having a stationary member and a movable member for actuating said second mechanism;

a wire connected at one end to the movable member of said first mechanism and which is slidably disposed through the stationary member of said second mechanism;

an actuating mechanism having a stationary member and a lever, said lever being operatively connected to the other end of said wire for selectively moving said wire in first and second axial directions, the movable member of said first mechanism being moved to operate said first mechanism upon said wire being moved in said first axial direction;

a first flexible housing disposed about said wire, said first houring being connected at one end to the stationary member of said actuating mechanism and at the other end of the movable member of said second mechanism;

a second flexible housing disposed about said wire, said

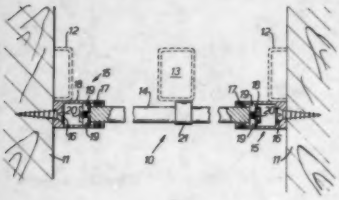
second housing being connected at one end to the stationary member of said second mechanism and at the other end to the stationary member of said first mechanism; and a stopper fixed on said wire and adapted to abut the stationary member of said second mechanism when said wire is driven in said second axial direction.

4,374,598

SECURITY BARS

Edwin C. Scott, 96 Capella St., Coorparoo Heights, Queensland 4151, Australia

Filed May 19, 1980, Ser. No. 150,947
Int. Cl.³ E05C *17/02*
U.S. Cl. 292—259 R **13 Claims**



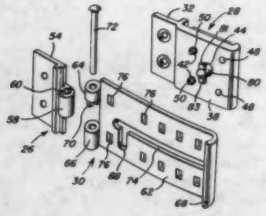
1. A security bar assembly for an opening including an elongate bar adapted to extend across an opening defined between a pair of members; a pair of socket connector assemblies each adapted to be secured to a respective one of said members defining said opening, each said socket assembly including a socket opening for receiving respective opposite ends of said bar; means for fastening said socket assemblies to the respective said members, said means being accessible only through the socket openings; and spring loaded connection means provided between at least one bar end and its corresponding socket assembly, said connection means being adapted to lock said bar end to said socket assembly.

4,374,599

SECURITY LOCK FOR DOOR

Alfred A. Hurt, 116 Harvey Ave., Oak Hill, W. Va. 25901

Filed Nov. 13, 1980, Ser. No. 206,474
Int. Cl.³ E05C *3/04, 17/18*
U.S. Cl. 292—270 **8 Claims**



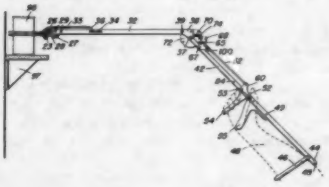
1. In combination with a structural member defining a door opening therethrough between first and second opposing marginal portions of said structural member and including a door having a first edge portion hingedly supported from said first marginal portion for swinging movement of a second opposite door edge portion toward and away from said second marginal portion, a releasable security lock including first and second components each including a base flange mounted on a corresponding second portion, said base flanges including extension flanges closely paralleling each other and said second portions and projecting outwardly from said second portions in the direction in which said door swings toward the open positions, one of said extension flanges defining a latching element receiving recess therein and the other of said extension flanges including a latching element projecting outwardly therefrom into said recess and shiftable relative to said other extension flange from an operative position to a retracted position withdrawn from said recess, pivot means pivotally supporting said one extension flange from the corresponding base flange for oscillation relative thereto about an axis generally paralleling the axis of oscillation of said door, said one extension flange and the corresponding base flange including co-acting latch means operative to releasably secure said one extension flange in operative position generally paralleling the other extension flange, said pivot means including means operative to allow shifting of said one extension flange relative to the corresponding base flange along the axis of oscilation of said one extension flange relative to the corresponding base flange between first and second positions, said latch means being inoperative, when said one extension flange is in said second position and operative when said one extension flange is in said first position.

4,374,600

LOCK-TYPE GRIPPING DEVICE FOR HANDICAPPED PERSONS

Willem D. van Zelm, 1005 Boyce Ave., Baltimore, Md. 21204

Filed Sep. 2, 1980, Ser. No. 182,960
Int. Cl.³ B25J *17/00*; F16C *11/10*
U.S. Cl. 294—19 R **6 Claims**



1. In a gripping device to aid handicapped persons in reaching and picking up objects, said gripping device having a gripping means, a forward arm member, a rearward arm member, and a control mechanism, a lock-type safety means, comprising:

a forward arm member;

a rearward arm member, said rearward arm member being pivotally connected to said forward arm member;

a control mechanism, said control mechanism being movably affixed to said rearward arm member, said control mechanism controlling the pivotal movement of said forward arm member toward the user and the gripping action of the device, said control mechanism having a remote thumb control means, said remote thumb control means controlling the activation of the pivotal operation of said forward arm member pivotally connected to said rearward arm member; and

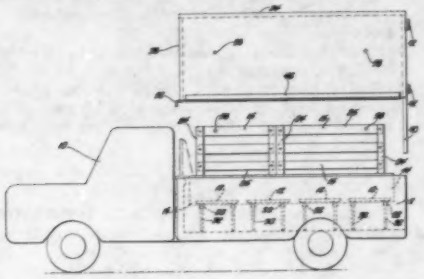
a locking means, said locking means being slidably positioned on said rearward arm member, said locking means automatically releasably engaging said control mechanism and locking it in a predetermined position when said rearward arm member is raised to an elevated position, said locking means serving as a safety device to make said remote thumb control means inoperative, said locking means also being capable of releasably disengaging from said control mechanism to permit said thumb control to function in controlling said activation of said pivotal operation of said forward arm.

4,374,601

VEHICLE CARGO BOX COVER

Chester J. Taylor, Warren, and Carl O. Hinkley, Detroit, both of Mich., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Jun. 20, 1980, Ser. No. 161,548
Int. Cl.³ B60N 1/00
U.S. Cl. 296—63 1 Claim



1. In a military truck having a cab cargo box, and two foldable troop seat assemblies detachably carried in the cargo box for supporting military personnel in seated positions facing the longitudinal centerline of the box, each troop seat assembly including a series of foldable seat elements (12) and a seat back structure (15) extending along and above one of the cargo box side walls: the improvement comprising a rigid cargo box cover mountable on the box to shield the seated military personnel from the weather; said cover comprising a roof panel, a front panel, two side panels, and a pair of doors individually swingably connectable to rear edges of the side panels for personnel access into or out of the cargo box; said panels being detachably connected together for disassembly into a relatively flat storage package having substantially the same plan dimension as the roof panel; the mounting mechanism for the cargo box cover comprising a first set of fastener bolts (50) trained between the cover side panels and the cargo box side walls, and a second set of fastener bolts (54) trained between the cover side panels and the seat back structures; the first fastener bolts (50) being vertically oriented to resist upward pull-out of the cover from the box; the second fastener bolts (54) being horizontally oriented to resist lateral displacement of the cover relative to the seat back structure; each panel being formed as a flat structure out of a material selected from plywood and fiberglass, the thickness of each panel being a maximum of one quarter inch; the roof panel having panel-attachment elements permanently affixed to three of its four edge areas, each panel-attachment element being an aluminum angle member (37) having one of its flanges adhered to a face area of the roof panel and its other flange extending normal to the roof panel plane; each side panel having a cargo box attachment element (46) permanently affixed to the panel lower edge, each cargo box attachment element being an aluminum angle member having an upstanding vertical flange adhered to a face area of the panel and another flange (48) extending horizontally normal to the plane of the side panel for placement on an upper edge of the cargo box side wall; said first fastener bolts (50) extending downwardly through said horizontal flange (48) into the cargo box side wall.

4,374,602

PAVEMENT CUTTER

Raymond A. Gurries, 1420 Eli Dr., Reno, Nev. 89511, and Harry J. Stormon, 908 Camino Real Dr., Sparks, Nev. 89431

Filed Feb. 23, 1981, Ser. No. 237,202
Int. Cl.³ E01C 23/12
U.S. Cl. 299—37 19 Claims

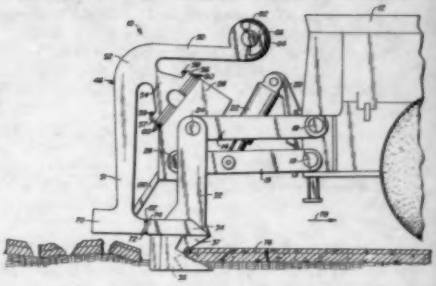
1. A system for cutting pavement into chunks to facilitate excavation thereof comprising:

a first plurality of trasversely spaced blade elements having cutting edges which project forwardly and upwardly;

a second plurality of transversely spaced blade elements having cutting edges which project forwardly and downwardly, blade elements of said first plurality being generally alternated with blade elements of said second plurality;

a frame for mounting the blade elements;

means for attaching the blade elements to the frame so that the blade elements are reciprocable forwardly and rearwardly;



means for motivating the frame so that the cutting edges of the blade elements intersect the edge of the pavement; and

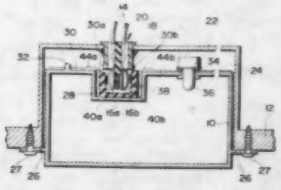
a resonant drive supported by the frame and having a vibratory output, said resonant drive including means for operatively coupling said output to the blade elements to drive said blade elements intermittently forwardly and against the pavement, adjacent cutting edges forcing the pavement upwardly and downwardly respectively to break the pavement into chunks.

4,374,603

ELECTRIC CONNECTOR FOR FLAT CABLE

Yukio Fukunaga, and Hiroshi Tsuda, both of Yokohama, Japan, assignors to Nissan Motor Co., Ltd., Yokohama, Japan

Filed Mar. 6, 1981, Ser. No. 241,084
Claims priority, application Japan, Mar. 10, 1980, 55-29256
Int. Cl.³ H01R 9/07
U.S. Cl. 339—17 F 3 Claims



1. An electric connector comprising:

a plug including an insulating housing and a plurality of terminal elements in said housing, each of said terminal elements having at its one end a mating section which is exposed from a head portion of said housing;

a socket including a body having a recess to receive said head portion of the plug, and a printed wiring sheet attached to said body in a manner such that a plurality of exposed foil terminals of said sheet are enfolded in said recess; and

an equalizing float accommodated within said recess of said socket with clearance for floating sideways movement therewithin and having an opening with an inside dimension matching with said head portion of said housing, said head portion being snugly inserted into said opening of said float, upon coupling of said plug with said socket, in

a manner such that the exposed foil terminals are grippingly held between the mating sections of said plug and the inner surface of said float,

wherein said exposed foil terminals of said sheet are formed at the base sections thereof with plastically deformable corrugated portions.

4,374,604

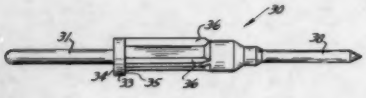
CONTACT FOR AN ELECTRICAL CONNECTOR

Valentine J. Hemmer; R. Amelia Piscitelli, both of Sidney; Charles P. Fischer, and James C. Washburn, both of Baibridge, all of N.Y., assignors to The Bendix Corporation, Southfield, Mich.

Filed Mar. 5, 1981, Ser. No. 240,735

Int. Cl.³ H01R *13/40*

U.S. Cl. 339—59 R **3 Claims**



1. In combination with an electrical connector assembly of the type having a housing; an electrically nonconducting insert mounted within the housing, said insert including at least one bore extending therethrough and means for retaining a contact assembly in each bore of said insert said means including a plurality of resiliently deflectable fingers and a slot separating adjacent fingers; and an electrical contact mounted in each of said bores, each contact including a forward mating portion, a rear wire receiving portion and an enlarged middle portion having forwardly and rearwardly facing shoulders one of said shoulders engaging said deflectable fingers to retain said contact in said bore; the improvement wherein;

each of said contact assemblies includes a radial projection located at the rear wire receiving portion of said contact, said projection extending into the slot separating the deflectable fingers whereby, each of said contact assemblies is prevented from rotating in said bore.

4,374,605

AN ASSEMBLY OF AN ELECTRICAL CONNECTOR AND PYROTECHNIC IGNITER

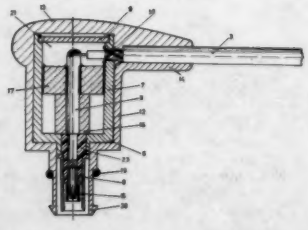
Sven-Erik Bratt, Karlskoga, Sweden, assignor to Aktiebolaget Bofors, Bofors, Sweden

Filed Sep. 2, 1980, Ser. No. 183,671

Claims priority, application Sweden, Sep. 3, 1979, 7907293

Int. Cl.³ H01R *13/658*

U.S. Cl. 339—143 R **3 Claims**



1. An assembly of an electrical connector for delivering current, and a pyrotechnic igniter for receiving said current, comprising:

an igniter element for igniting a primer charge, said igniter element having first and second concentric connection elements;

a connector for supplying an igniting current to said igniter element, comprising:

a metallic housing having a first opening for receiving a two conductor cable, one of said conductors being connected to said housing;

first and second concentric tubular connection elements attached to said housing, said tubular connection elements being adapted to mate with said igniter connection elements, one of said tubular elements being electrically connected with said housing and the other insulated therefrom; and

a high frequency filter within said housing, said filter connecting the remaining of said conductors to the remaining of said tubular connection elements, whereby igniting current is supplied from said cable to said igniter and high frequency induced signals are inhibited from entering said igniter.

4,374,606

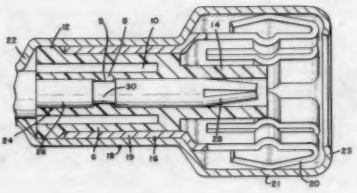
DIELECTRIC PLUG FOR A COAXIAL CONNECTOR

John C. Lathrop, Harrisburg, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Filed Nov. 26, 1980, Ser. No. 210,693

Int. Cl.³ H01R *13/40*

U.S. Cl. 339—177 R **3 Claims**



1. A dielectric plug of resilient material for press insertion into a connector shell body of a coaxial connector and for engaging a center contact means, comprising:

a tubular forward portion;

a tubular rear portion including an inner portion and an outer portion having forward ends integrally joined to said forward portion and being coaxially spaced from one another by an air gap therealong, said inner portion and said forward portion having a continuous axial bore extending therethrough;

said outer portion resiliently exerting radial spring retention force on the shell body after insertion of the dielectric plug therein;

said inner portion having annular ridge means projecting into said axial bore for resiliently engaging complimentary means of the center contact means when the center contact means is positioned in said axial bore; and

said air gap compensating for impedance mismatch caused when outer conductor means and center conductor means of a coaxial cable means are respectively terminated to the shell body and center contact means.

4,374,607

ELECTRICAL PIN AND SOCKET CONNECTOR

Edward J. Bright, Elizabethtown; Hitesh Cherry, Harrisburg; Robert E. Dehoff, Mt. Joy; James L. Fedder, Middletown, and Tom R. Williams, Elizabethtown, all of Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Filed Apr. 29, 1981, Ser. No. 258,820

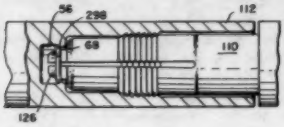
Int. Cl.³ H01R *11/22*

U.S. Cl. 339—253 R **4 Claims**

1. A pin and socket connector of the type formed by the pin being telescopingly received in the socket, said connector comprising:

a. an elongated pin of conductive material having cable receiving means at one end and cylindrical, socket insertion means at the opposite end, said insertion means being slotted to define a plurality of spring beam members and further having a plurality of outwardly projecting teeth encircling the circumference of the insertion means at a location rearwardly of its free end;

b. removable means positioned on the insertion means adapted to removably hold the spring beam members together in a compressed position; and



c. an elongated socket having cable receiving means at one end and a receptacle at the opposite end adapted to receive the insertion means of the pin with the receptacle wall containing a plurality of circumferential, tooth-receiving grooves and the socket further having means to remove the removable means upon the receptacle receiving the insertion means thereby permitting the spring beam members to expand, forcing the teeth into the teeth-receiving grooves to thereby lock the pin in the socket.

4,374,608

FIBER OPTIC CABLE

Gene S. Anderson, Elburn, Ill., assignor to Belden Corporation, Geneva, Ill.

Continuation of Ser. No. 9,536, Feb. 5, 1979, abandoned. This application Dec. 17, 1980, Ser. No. 217,230

Int. Cl.³ G02B 5/14

U.S. Cl. 350—96.23 14 Claims

1. A fiber optic cable comprising at least one elongated fiber optic element, a nonmetallic tubular flexible and substantially radially noncompressible shield layer disposed substantially coaxially along the length of said fiber optic element in loose fitting relation thereon, and a nonmetallic braided strength member disposed coaxially along the length of said shield layer in tight fitting relation thereon, said braided strength member consisting of a plurality of discrete strands of nonmetallic material braided together along the length of said tubular shield layer so as to cover substantially the full outer peripheral surface of said tubular shield layer, said discrete strands being braided so that the discrete strands are wound in intertwined opposite helical relation along the length of said shield layer with the strands common to each helical direction being in substantially parallel contacting relation, said braided strength member having greater tensile strength and lower elongation per unit length than said fiber optic element so that the major portion of any tensile load acting on said cable is taken substantially by said braided strength member.

4,374,609

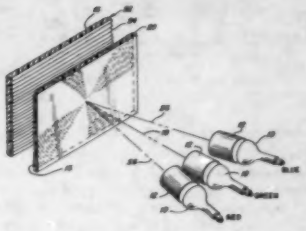
IMAGE PROJECTION SCREEN WITH DECREASED COLOR SHIFT AS A FUNCTION OF VIEWING ANGLE, AND METHOD OF MANUFACTURE

Howard G. Lange, Prospect Heights, Ill., assignor to Zenith Radio Corporation, Glenview, Ill.

Filed May 21, 1981, Ser. No. 265,938

Int. Cl.³ G03B 21/60

U.S. Cl. 350—128 9 Claims



1. An image projection screen defining a normal axis, and intended for use with a plurality of image projectors including an axial image projector, the optical axis of which is substantially coplanar with said normal axis, and at least one off-axis image projector the optical axis of which is displaced from the common plane of said coplanar axes in a transverse direction; said screen having a plurality of lenticules for distributing light from said image projectors over a viewing angle range extending across said transverse direction; each of said lenticules having respective light-directing cross-sectional profiles which distribute light from said image projectors across said transverse direction in a manner which varies as a function of said viewing angle; said light distribution differing as between said axial and said off-axis image projectors; wherein a selected plurality of said lenticules are formed so that said profiles thereof are substantially proportional to a third curve which may be derived by:

(a) selecting an asymmetric first curve having an off-center peak defined by the maximum value of the coordinate of said curve in said normal direction,

(b) deriving an asymmetric second curve by selecting only a major portion of said first curve,

(c) and deriving said third curve by symmetrically joining together said second curve and its mirror image;

whereby said selected lenticules have respective distributions of light from said off-axis projector with respective maximum values which coincide with respective lines that are substantially normal to said screen at the respective locations of said selected lenticules.

4,374,610

DISH SHAPED SUBSTRATE FOR ELECTROCHROMIC DISPLAYS

Hiroshi Kuwagaki, Kyoto; Kozo Yano, Tenri, and Sadatoshi Takechi, Nara, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Continuation of Ser. No. 84,433, Oct. 12, 1979, abandoned, which is a continuation of Ser. No. 817,265, Jul. 20, 1977, abandoned. This application Sep. 24, 1981, Ser. No. 305,203

Claims priority, application Japan, Jul. 23, 1976, 51-88572; Sep. 3, 1976, 51-119739[U]; Jun. 13, 1977, 52-77554[U]

Int. Cl.³ G02F 1/17

U.S. Cl. 350—357 1 Claim

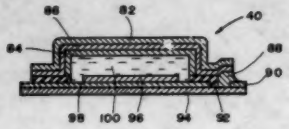
1. An electrochromic display device comprising in combination:

a first flat substrate having a display selection electrode formed on one surface thereof;

a second dish shaped substrate with a bottom and raised

portion having a counter or reference electrode formed on the inner concave surface thereof;

said substrates being attached to each other by a conductive adhesive at the peripherally raised portion of said dish shaped substrate so as to define a cavity therebetween with the respective opposing surfaces of said electrodes forming parallel walls of said cavity, and the distance



between said display electrode and counter or reference electrode being substantially defined by the depth of said dish shaped substrate at a fixed, predetermined length;

a transfer terminal provided at the periphery of said first flat substrate for connecting the electrode disposed on said dish shaped substrate to a power source via said conductive adhesive; and

a groove for introducing an electrolyte into said cavity.

4,374,611

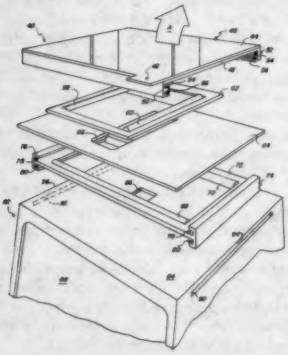
COMPACT X-Y POSITIONING MECHANISM FOR MICROFICHE

Stephen P. Hines, Glendale, Calif., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Jun. 5, 1981, Ser. No. 270,939

Int. Cl.³ G03B *23/08*

U.S. Cl. 353—27 R **2 Claims**



1. In a microfiche projecting apparatus, a compact X-Y positioning mechanism for microfiche, comprising:

a first bearing surface, fixed with respect to the microfiche projecting apparatus, said first bearing surface being substantially as large as the microfiche to be viewed, and having a central aperture therein for the optical path of the projecting apparatus;

first roller means, including a first pair of cylindrical rollers mounted in parallel spaced relation for rolling movement on said first bearing surface in a first direction;

second roller means, including a second pair of cylindrical rollers mounted in parallel spaced relation for rolling movement in a second direction, generally perpendicular to said first direction; an intermediate bearing plate disposed between said first and second roller means, said bearing plate having a central aperture approximately four times as large as said aperture in said first bearing surface in said first direction, and approximately the same size as said aperture in said first bearing surface in said second direction, so that upon movement of said first roller means in said first direction by a certain amount, said second roller means is moved in said first direction by twice that amount; and

microfiche carrier means for supporting a microfiche in a plane generally perpendicular to the optical axis of an optical system used to view the microfiche, said microfiche carrier means having a bearing surface and being disposed relative to said second roller means such that said bearing surface is borne by said second pair of rollers, such that upon movement of said first roller means in said first direction, said microfiche carrier means moves in concert with said second roller means, and upon movement of said second roller means in said second direction by a certain amount, said microfiche carrier means is moved in said second direction by twice that amount,

whereby a smoothly operating microfiche positioning mechanism occupying approximately the area of one microfiche but capable of translating over an area approximately four times the area of one microfiche, is provided.

4,374,612

MARK INDICATING DEVICE FOR OPTICAL APPARATUS

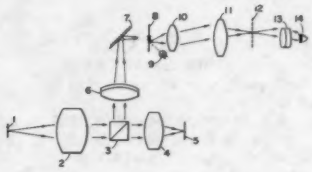
Susumu Matsumura, Kawasaki, and Takashi Suzuki, Yokohama, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 13, 1981, Ser. No. 283,014

Claims priority, application Japan, Jul. 25, 1980, 55-102587; Apr. 3, 1981, 56-50751

Int. Cl.³ G03B *17/20, 13/02*

U.S. Cl. 354—53 **8 Claims**



1. In an optical apparatus having objective lens means for forming an image of an object, a device for indicating a mark and view-finder means for viewing said image of object and said mark, wherein said device comprises:

a relief hologram comprising a plurality of semi-reflective oblique faces periodically arranged to form a diffraction lattice entirely embedded in a transparent body, said hologram being arranged in an optical path of said optical apparatus; and

illuminating means arranged outside said optical path to illuminate said hologram for obtaining a reconstructed image of said mark in overlapping manner with said image of object.

4,374,613

AUTO/MANUAL CAMERA EMPLOYING COMMON LENS FOCUSING DATA

John W. Stempeck, Reading, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Jun. 4, 1981, Ser. No. 270,238

Int. Cl.³ G03B *3/10*

U.S. Cl. 354—196 **13 Claims**

1. A photographic camera operable in both automatic and manual focusing modes, said camera comprising:

a lens variable between different positions for focusing of subjects located at different subject distances on the focal plane of the camera;

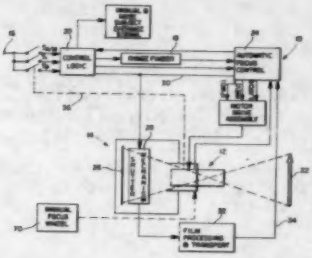
ranging means for determining subject distance and for

providing an electrical range signal indicative of subject distance;

sensing means for producing an electrical lens position signal indicative of each lens position;

means for comparing said range signal and said lens position signal and for automatically varying the lens to a focal position selected in accordance with said range signal;

selectively operative means for precluding said automatic variation of the lens to the range selected position when the camera is operated in the manual mode; and



follow focus means for controlling one or more camera functions in accordance with the focal position of the lens, said follow focus means being directly responsive to said lens position signal so that said follow focus means is operative in both automatic and manual modes of operation, but determined by the automatic selection of the lens position by said ranging means in the automatic focusing mode and by the operator selection of the lens position in the manual focusing mode.

4,374,614

MECHANISM FOR LOADING FILM BACK IN OR UNLOADING SAME FROM CAMERA BODY

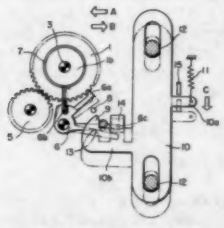
Takumi Kobayashi, Tokyo, Japan, assignor to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 29, 1981, Ser. No. 316,372

Claims priority, application Japan, Oct. 30, 1980, 55-155386[U]

Int. Cl.³ G03B *1/00*

U.S. Cl. 354—216 **11 Claims**



1. In a film back of the type having a film spool gear which, when said film back is inserted into a camera, will engage a winding gear in said camera, and one-way means for permitting rotation of said film spool gear in only one direction, the improvement comprising:

disabling means for disabling said one-way means only during insertion or removal of said film back to permit rotation of said film spool gear in either direction during insertion of said film back into said camera or removal of said film pack from said camera.

4,374,615

EXPOSURE CONTROL CIRCUIT FOR CAMERAS EQUIPPED WITH SELF-TIMER

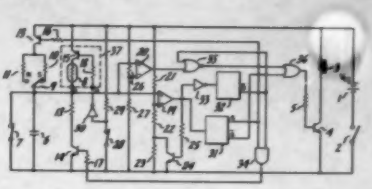
Shinji Nagaoka, and Koji Satoh, both of Shikawatashi, Japan, assignors to Seiko Koki Kabushiki Kaisha, Japan

Filed Apr. 28, 1981, Ser. No. 258,526

Claims priority, application Japan, Jun. 20, 1980, 55-83581

Int. Cl.³ G03B *17/40*

U.S. Cl. 354—238 **7 Claims**



1. An exposure control circuit, for a camera, comprising:

an electrical self-timer operation control circuit for setting a self-timer operating time period by means of a time setting circuit including a resistance and a condenser; an exposure time control circuit capable of automatically determining an exposure time by means of the output of a photoelectric element and including said condenser; and means for controlling a charge on said condenser so as to function as the condenser for said self-timer operation control circuit, the condenser for setting a time period between the completion of the operation of a self-timer and the starting of the exposure operation, and as the time-setting condenser of said exposure control circuit.

4,374,616

IMAGE-FORMING APPARATUS HAVING A PHOTOSENSITIVE MEMBER TRANSFER MECHANISM

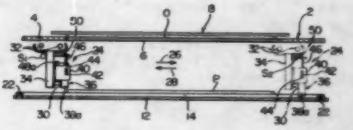
Koichi Sasaki, Higashi; Hiroshi Ishida, Ibaragi; Yasuji Sumida, Nara, and Akira Tanaka, Kyoto, all of Japan, assignors to Mita Industrial Co., Ltd., Osaka, Japan

Filed Jun. 24, 1981, Ser. No. 276,627

Claims priority, application Japan, Jun. 30, 1980, 55-91813[U]

Int. Cl.³ G03G *15/00*

U.S. Cl. 355—3 CH **4 Claims**



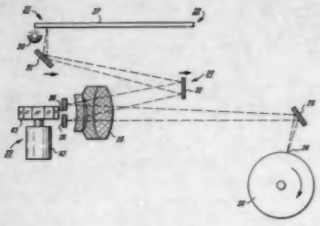
1. An image-forming apparatus comprising an original-support plate for placing an original document thereon; a photosensitive member support stand disposed opposite to, and beneath, said original-support plate for placing a photosensitive member thereon, a charging-exposing unit for forming a latent electrostatic image corresponding to the original document on the photosensitive member, said charging-exposing unit being mounted between the original-support plate and the photosensitive member support stand for transverse reciprocation, a power driving source for moving said charging-exposing unit reciprocally, and a mechanism annexed to said charging-exposing unit for transferring the photosensitive member, said mechanism being adapted to act on the photosensitive member placed on the support stand during the return movement of the charging-exposing unit to move the photosensitive incident to the return movement of the charging-exposing unit.

4,374,617

MULTI-FUNCTION DOCUMENT PROCESSOR

Tibor Fisli, Los Altos Hills, Calif., assignor to Xerox Corporation, Stamford, Conn.

Filed Aug. 5, 1981, Ser. No. 290,136
Int. Cl.³ G03G *15/28*
U.S. Cl. 355—8 **11 Claims**



1. In a multi-function document processor for selectively performing photocopying and raster scanning, said document processor including

(a) a transparent platen for supporting a subject copy,

(b) a selectively energizeable light source for illuminating said subject copy for photocopying,

(c) another selectively energizeable light source for supplying a light beam for raster scanning, and

(d) a photosensitive recording medium, and

(e) imaging optics for photocopying and raster scanning, said imaging optics being optically aligned between said platen and said recording medium and having a predetermined optical axis;

the improvement comprising

(i) a reflective, multi-faceted rotating polygon for cyclically scanning said light beam through a predetermined scan angle during raster scanning, and

(ii) means aligned with the optical axis of said imaging optics in a tangential plane and displaced from said axis in a sagittal plane for applying said light beam to said polygon for raster scanning;

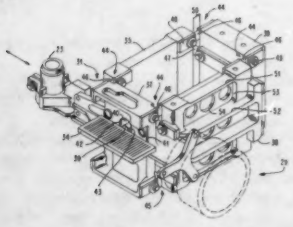
(iii) said imaging optics being selected to focus said light beam on said polygon and to refocus said light beam on said platen or on said recording medium.

4,374,618

MICROFILM CAMERA HAVING A MOVING LENS

Thomas W. Howard, Harrisburg, N.C., assignor to IBM Corporation, Armonk, N.Y.

Filed Mar. 16, 1981, Ser. No. 244,458
Int. Cl.³ G03B *27/48, 27/50*
U.S. Cl. 355—50 **7 Claims**



1. A camera for recording an image of moving documents onto a substantially stationary photosensitive surface wherein the image is projected onto the photosensitive surface by an optical element supported by a four-bar linkage for movement in proportional synchronism with the document to substantially arrest motion of the image with respect to the photosensitive surface, and wherein the improvement comprises:

a frame part;

said four-bar linkage having a pair of side arms and a shuttle arm connected therebetween, each of said arms being configured to have high stiffness and low mass;

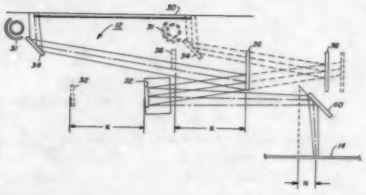
hinge means interconnecting said arms and frame part, said hinge means each comprising a pair of substantially transversely oriented leaf springs which are securely clamped at each end to respective ones of said frame part and said arms.

4,374,619

VARIABLE MAGNIFICATION COPYING APPARATUS

Richard A. Spinelli, Rochester, and Edward C. Bock, Webster, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Nov. 2, 1981, Ser. No. 317,033
Int. Cl.³ G03B *27/34, 27/40, 27/70*
U.S. Cl. 355—57 **2 Claims**



1. An optical system for use in a document reproducing apparatus wherein enlarged or reduced images of an original document lying in an object plane are exposed onto a flat imaging plane, said system including:

a first mirror adapted to scan said document in a plane parallel to said object plane,

a second mirror adapted to maintain a constant object conjugate during 1x operation but a variable object conjugate by displacement of a distance K upon selection of a magnification mode,

a lens located at a fixed location during 1x operation but displaced a distance K in a plane parallel to said object plane during a magnification mode, and

a third mirror located in the optical path between said lens and said imaging plane, said mirror displaced a second distance N and adapted to reflect reduced or enlarged images onto the imaging plane while maintaining constant image conjugate.

4,374,620

PHOTOMETRIC FLOW CELL

Alan C. Berick, Albany, and Haakon T. Magnussen, Jr., Pinole, both of Calif., assignors to Altex Scientific, Inc., Berkeley, Calif.

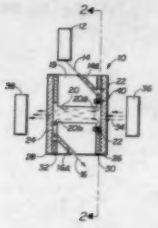
Filed Jan. 29, 1981, Ser. No. 229,614
Int. Cl.³ G01N *1/10*
U.S. Cl. 356—246 **13 Claims**

1. A photometric flow cell comprising:

a flow cell body having a passageway for receiving and passing fluid samples between opposite ends thereof;

optically transparent windows at said opposite ends of said passageway for passing light along an optical path through sample in said passageway;

an annular channel around one of said opposite ends of said passageway; and



flow impedance means including a microporous annulus in said channel surrounding said one of said opposite ends for circumferentially distributing fluid flowing therethrough.

4,374,621

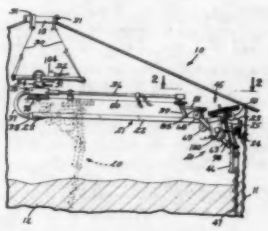
APPARATUS FOR CONTROLLING POWER DELIVERY TO A GRAIN STIRRING DEVICE

Larry Stille, Rockford, Iowa, assignor to David Manufacturing Company, Mason City, Iowa

Filed Oct. 28, 1981, Ser. No. 315,970

Int. Cl.³ B01F *7/24, 7/30*

U.S. Cl. 366—261 **5 Claims**



1. Apparatus for controlling delivery of power to a material-stirring device mounted in a material storage container, said material-stirring device having means for stirring said material and means for moving said stirring means about said container, said stirring means and said moving means being driven by said power, said apparatus comprising;

means for sensing movement of said moving means; and

means for interruptably connecting said power to said stirring means, said connecting means being controlled by said sensing means;

whereby when said sensing means senses absence of movement of said moving means, said connecting means interrupts power to said stirring means, thereby protecting said material from harmful overstirring.

4,374,622

DIGITAL ALARM TIMEPIECE WITH SETTING POINTER

Toshio Kashio, Tokyo, Japan, assignor to Casio Computer Co., Ltd., Tokyo, Japan

Filed Jan. 23, 1980, Ser. No. 114,569

Claims priority, application Japan, Jan. 29, 1979, 54-8892; Jan. 29, 1979, 54-8893

Int. Cl.³ G04B *23/02;* **G04C** *9/00*

U.S. Cl. 368—74 **3 Claims**

1. An electronic timepiece comprising:

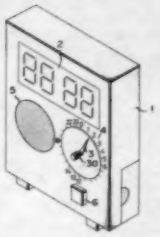
current time counting means for always electronically counting current time data including data representing at least minutes and hours;

optical display means coupled to said time counting means for always displaying the current time data counted by said time counting means;

indicating means including sliding means for selectively setting one of a plurality of set times represented by a selected stop position of said sliding means;

said current time counting means counting current time data independently of the setting of said indicating means, and said display means displaying said current time data for all settings of said indicating means;

clock generating means coupled to said sliding means for detecting sliding of said sliding means and for generating clock signals responsive to the detected sliding;



set time counting means coupled to said indicating means for obtaining set time data corresponding to the set time of said indicating means;

coincidence means coupled to said set time counting means and to said current time counting means for detecting a coincidence between said set time data and said current time data counted by said current time counting means;

sounding means coupled to said coincidence means and driven to generate a sound when said set time data is coincident with said current time data; and

operating means coupled to said set time counting means and being selectively operable for presetting set time data corresponding to a set time of said indicating means into said current time counting means as initial current time data.

4,374,623

LIGHT BEAM CLOCK

Jerome H. Simon, 17 Hubbard Ave., Cambridge, Mass. 02140

Filed May 5, 1980, Ser. No. 146,345

Int. Cl.³ G04B *19/00*

U.S. Cl. 368—79 **8 Claims**

1. A light beam clock comprising:

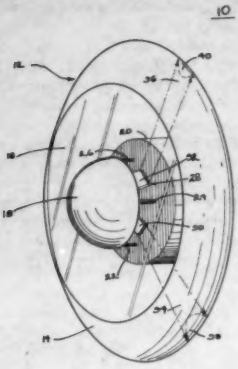
a clock drive motor including a first member rotatable at the speed of one revolution per hour and a second member rotatable at the speed of one-twelfth revolution per hour;

light source means;

a circumferential display portion;

a beam mechanism including a first mirror mounted with said first member for directing light from the light source means in a first radial beam to form a first spot of light representing minutes on said circumferential display portion and a second mirror mounted with said second mem-

ber for directing light from the light source means in a second radial beam to form a second spot of light repre-



senting hours on said same circumferential display portion.

4,374,624

SOUND EMITTING DEVICE FOR ELECTRONIC TIMEPIECE

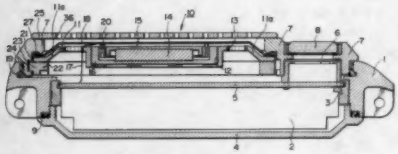
Toshio Murata, Hoya, Japan, assignor to Citizen Watch Co., Ltd., Tokyo, Japan

Filed Aug. 13, 1981, Ser. No. 292,621

Claims priority, application Japan, Sep. 8, 1980, 55-127579; Dec. 17, 1980, 55-181544

Int. Cl.³ G04C *21/00*

U.S. Cl. 368—250 **15 Claims**



1. A sound emitting device for an electronic timepiece comprising:

a disk-shaped permanent magnet;

at least one yoke introducing magnetic flux produced by said magnet and forming, outside the periphery of said magnet, a magnetic gap having the magnetic flux in the vertical direction of the perimeter of said magnet and in the horizontal direction of the disk surfaces of said magnet;

a diaphragm carrying, within the magnetic flux of the magnetic gap, a moving coil wound at right angles to said magnetic flux and adapted to be vibrated by the electromagnetic force received from said magnetic flux in response to variations in signal currents sent from a circuit block to said coil; and

a support member supporting said permanent magnet and said yoke as well as said diaphragm at the diaphragm peripheral portion and to be secured removably at the support member peripheral portion to a timepiece case, a plurality of openings being provided in a part of said support member except where said permanent magnet, yoke and diaphragm are supported, and said support member forming an air chamber which opens to the back of the diaphragm, when the support member is packaged in the timepiece case.

4,374,625

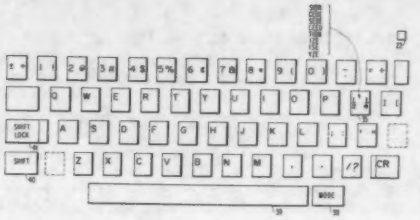
TEXT RECORDER WITH AUTOMATIC WORD ENDING

Roy F. Hanft, and Gerald G. Pechanek, both of Lexington, Ky., assignors to IBM Corporation, Armonk, N.Y.

Filed May 1, 1980, Ser. No. 145,523

Int. Cl.³ B41J *3/02*

U.S. Cl. 400—98 **28 Claims**



1. An automatic word ending text recorder of the kind having:

text display means to display a sequence of text characters in intelligible form in response to character and function identifying signals,

keyboard means including a plurality of alphanumeric, symbol and function keys to produce a keycode signal unique to any operator-actuated key, and

decoding means responsive to keycode signals from said keyboard means to produce said character and function identifying signals, wherein the improvement comprises:

word ending means within said decoding means producing one of at least two groups of one or more character identifying signals in response to actuation of a selected key on said keyboard, each group of character identifying signals representing a different word ending and wherein said word ending means includes means for selecting among said groups depending upon identification of one or more key actuations prior to actuation of said selected key.

4,374,626

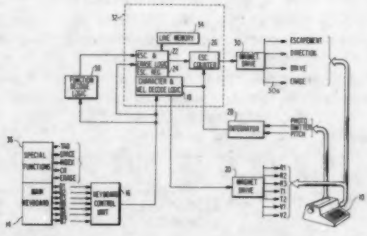
ERASING TYPEWRITER WITH AUTOMATIC/MANUAL SELECTION

Robert W. Hooker, Lexington, Ky., assignor to IBM Corporation, Armonk, N.Y.

Continuation-in-part of Ser. No. 116,733, Jan. 30, 1980, abandoned. This application Apr. 18, 1980, Ser. No. 141,737

Int. Cl.³ B41J *29/16*

U.S. Cl. 400—697.1 **7 Claims**



1. In an erasing typewriter including

key actuated means for generating signals representing an actuated key,

memory means for storing an ordered sequence of signals representing a sequence of operator actuated keys,

print means including print and erase media for executing a print cycle to at times print a character at a print point if

said print medium is enabled, or to erase a character at a print point if said erase medium is enabled,

print point position control means responsive to said key actuated means for displacing said print means and for accessing a selected location of said memory means corresponding to said print point, and

erase means operative in response to actuation of an erase key for initiating a sequence of operations including:

(a) actuating said print point position control means to displace said print point one character space toward a left margin,

(b) accessing said memory means at a selected location corresponding to said displaced print point for reading signals stored at said selected location,

(c) actuating said print means and enabling said

erase medium to execute a print cycle to erase a character at said print point corresponding to signals read from said memory means,

the improvement comprising:

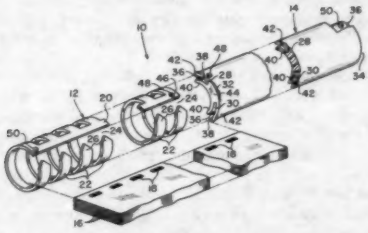
first means responsive to absence of signals representing an erasable character at said selected location of said memory means to inhibit said print cycle and to enable said erase medium and said print means to execute a print cycle on a following key actuation only if said following key actuation corresponds to actuation of a key representing an erasable character.

4,374,627

BINDER FOR PERFORATED SHEETS OR THE LIKE

Michael N. Friedman, 7 Harbor Ct., Centerport, N.Y. 11721

Filed Jan. 13, 1981, Ser. No. 234,364
Int. Cl.³ B42F *13/10, 13/18*
U.S. Cl. 402—21 **21 Claims**



1. A binding comprising a toothed member and an engaging member relatively movable lengthwise to and from a binding position,

said toothed member having an elongated body formed unitary with a plurality of teeth extending from one side thereof,

said body and teeth being curved about its longitudinal axis so that the free ends of said plurality of teeth are spaced from an adjacent side of said body and said free ends of said teeth and body are substantially smooth and free of obstructions such that perforated sheets and the like may be moved through said space and the free unobstructed ends of said teeth may move unobstructedly through the sheet perforations for engagement with and disengagement from the perforations to bind the sheets and the like to said toothed member,

and said engaging member being elongated to substantially the length of said toothed member and having relatively spaced tracks on opposite sides of the length thereof so that each said track engages a respective one of said body and teeth for relative lengthwise sliding engaging movement to and from the binding position,

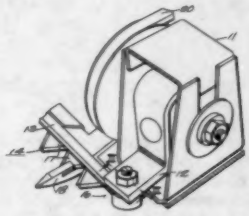
said tracks being substantially smooth and unobstructed and curved substantially coincident with their respective body and teeth to effect surface engagement therewith along said coincident substantially smooth and unobstructed curves such that when a separating force is applied to said toothed member other than in the lengthwise direction, the applied separating force causes said body and teeth to deform out of their original curvature into surface frictional engagement with the surfaces of their respective tracks to resist relative separation of said toothed member from said engaging member in the direction of the separating force.

4,374,628

JOINT FOR SECURING A SICKLE DRIVE PIN

Jerry C. Boone, and Richard L. Randall, both of Independence, Mo., assignors to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed Sep. 22, 1980, Ser. No. 188,770
Int. Cl.³ F16C *11/00*
U.S. Cl. 403—162 **9 Claims**



1. A joint for pivotally connecting a reciprocating sickle member to its offset driving member for transmission of force in the direction of reciprocation characterized by

a cylindrical pin having threads on at least one of its axially opposite ends, and disposed on an axis transverse to the direction of reciprocation of said sickle member,

bearing means connecting said pin to one of said members having radially inner and outer bearing elements,

wall means in said other member presenting a conical surface defining a conically shaped opening aligned with and surrounding said pin,

axially tapered wedging sleeve disposed within said opening having radially inward and outward facing surfaces in confronting relation to said pin and conical surface, respectively,

means independent of said pin and one member placing said sleeve in axial thrust transmitting relation to said inner bearing element,

a threaded fastening member in threaded engagement, respectively, with said threads on said one end of said pin and in axial thrust transmitting relation to said other member, and

axial thrust transmitting means on the other end of said pin in axial thrust transmitting engagement with said inner bearing element.

4,374,629

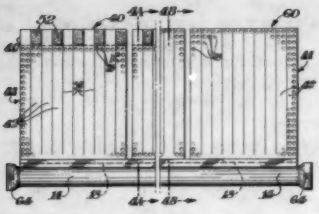
SYNTHETIC SEAWEED

William L. Garrett, 100 Dickinson La., West Park, Wilmington, Del. 19807

Continuation-in-part of Ser. No. 6,567, Jan. 6, 1979, Pat. No. 4,221,500. This application Aug. 18, 1980, Ser. No. 178,856
Int. Cl.³ E02B *3/04*
U.S. Cl. 405—24 **1 Claim**

1. Synthetic seaweed for underwater installation comprising an elongate anchor, a plurality of flexible strips of material having a specific gravity less than that of sea water secured to the elongate anchor extending outwardly therefrom and terminating at free end portions, each strip having a width within the range of one-quarter inch to six inches and a length within the range of two to fifteen feet, a plurality of perforations in

each of the strips whereby resistance of the strips to underwater currents is reduced, the percent open area of the perfora-



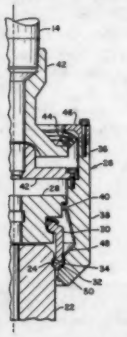
tions being approximately twenty-five to fifty percent, and tabs of buoyant material secured to the exterior of at least the free end portions of at least some of the strips.

4,374,630

ANCHOR CONNECTOR FOR TENSION LEG

Thomas A. Fraser, Jr., Ventura, Calif., assignor to Vetco Offshore, Inc., Ventura, Calif.

Filed Aug. 21, 1980, Ser. No. 180,225
Int. Cl.³ E02D 5/54
U.S. Cl. 405—224 **3 Claims**



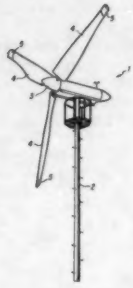
1. An anchor connector for connecting a tension leg of a tensioned leg platform to a cylindrical mandrel having a circumferential groove around the outer periphery comprising: a generally cylindrical latch segment retainer body; a plurality of latch segments pivotally supported and depending from said retainer body in an annular array, each segment having an inwardly-extending boss at its lower end sized to engage the annular groove, the upper edge of said boss sloped upwardly from the center of the annular array; a connector body having a downwardly-extending skirt surrounding said latch segments and said retainer body, and having an axial lost motion connection to said retainer body, whereby said retainer body has an upper position and a lower position with respect to the connector body; said skirt having at its lower end surface abutting the outer edge and bottom edge of the lower portion of said latch segments, when said retainer body is in its lower position, and having an internal recess above the lower end for permitting said latch segments to pivot outwardly when said retainer body is in the upper position; and means for selectively locking said retainer body to said connector body in the upper position.

4,374,631

WINDMILL SPEED LIMITING SYSTEM UTILIZING HYSTERESIS

Dale R. Barnes, Kersey, Pa., assignor to Fayette Manufacturing Corporation, Clearfield, Pa.

Filed May 21, 1981, Ser. No. 265,839
Int. Cl.³ F03D 7/04
U.S. Cl. 416—23 **4 Claims**

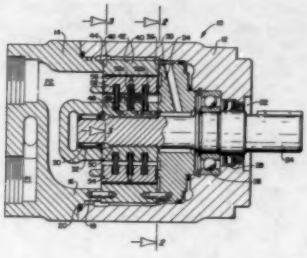


1. A speed limiting system for a windmill, comprising:
a hub mounted for rotational movement;
a plurality of blades attached to said hub, each blade including a main blade portion and a rotatable blade tip portion;
a plurality of rods for coupling respective blade tip portions to said drum;
each blade tip portion containing a cam track bushing and a cam follower and coupled to a respective one thereof for imparting rotational movement to the respective blade tip portion in relation to the respective main blade portion, said cam track pushing including at least one cam track for receiving said cam follower and allowing relative movement therein, said cam track including a first track section extending axially with respect to the respective blade and a second track section extending both axially and circumferentially with respect to the respective blade;
a drum rotatably coupled to said hub;
bias means coupling said drum and said hub for producing a force opposing relative rotation therebetween, said bias means coupled to said drum with a initial torque arm determined by the initial positioning of said cam follower in said first track section of said cam track bushing and coupled to said drum at a second torque arm less than first torque arm when said cam follower completely transverses said second cam track section;
wherein blade rotation results in a centrifugal force being applied to said drum in opposition to the force produced by said bias means, such that as blade rotation speed increases, the torque on said drum produced by the centrifugal force eventually exceeds that produced by the bias means, resulting in rotation of the drum and travel of said cam follower within said cam track, said blade tip portion correspondingly undergoing axial and then also rotational and axial movement as said cam follower traverses said cam track with increasing speed, each blade tip portion remaining rotated upon transversing said second track section until the blade rotation speed decreases to a point where the torque on the drum produced by the bias force exceeds that produced by the centrifugal force, whereby a hysterisis effect is achieved.

4,374,632
VANE CONTROL FOR A VANE MOTOR

Jack W. Wilcox, Columbus, Ohio, assignor to Abex Corporation, New York, N.Y.

Filed Feb. 2, 1981, Ser. No. 230,766
Int. Cl.³ F04C 2/356
U.S. Cl. 418—267 3 Claims



1. In a vane motor having: a rotor member; a stator member; a cam surface formed on one of the members; a plurality of vane slots formed in the other member; a vane in each slot for movement relative thereto and having a first face, a second face, an inner end, an outer end, a first side, a second side, a first sealing lip on said outer end adjacent the first face, a second sealing lip on said outer end adjacent the second face, an outer groove formed between the first and second sealing lips; a first bore connecting said inner end and said outer end; said bore opening into said outer groove, said bore having a fluid restrictor therein which causes a pressure drop when fluid flows through the restrictor; said rotor and stator members cooperating with a pair of port plates to provide a high pressure zone, a transfer zone, a low pressure zone and a sealing zone; said vanes sequentially traversing said high pressure zone, transfer zone, low pressure zone and sealing zone; the improvement comprising means for preventing pressure fluid in the outer groove from leaking down the first and second sides of the vane and means for supplying high pressure fluid to the inner end of a vane as it traverses one of the transfer or sealing zones such that when the outer end of the vane is separated from the cam surface, the high pressure fluid which is supplied to the inner end of the vane flows through the restrictor to the outer end of the vane and over the one of the first or second sealing lips which is in fluid communication with low pressure fluid such that a pressure drop is created across the restrictor which results in a force that acts to bias the vane outwardly of its slot and into contact with the cam surface.

4,374,633
APPARATUS FOR THE CONTINUOUS MANUFACTURE OF FINELY DIVIDED METALS, PARTICULARLY MAGNESIUM

Robert J. Hart, 190 Briarwood Crossing, Cedarhurst, N.Y. 11516

Filed Mar. 16, 1981, Ser. No. 244,249
Int. Cl.³ B22F 9/00
U.S. Cl. 425—7 7 Claims

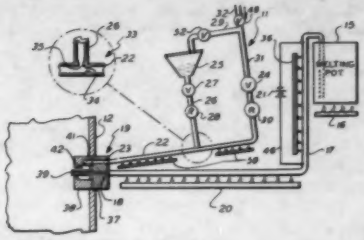
1. Apparatus for manufacturing magnesium powder comprising:

a chamber containing an inert gas;

a first nozzle for projecting a stream of molten magnesium into said chamber;

a second nozzle for projecting a stream of inert gas into said chamber to impinge upon and atomize the molten magnesium stream into droplets which then cool and solidify to form magnesium powder; and

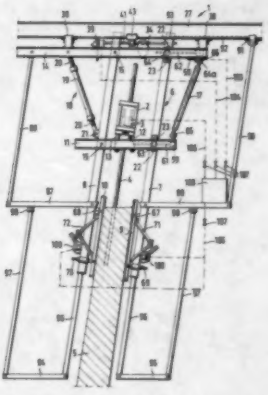
means for introducing into said inert gas stream an abrasive comprising an oxide of magnesium for removing or dislodging build up deposits of solidified magnesium accumulated at the exit of the magnesium stream nozzle.



4,374,634
DEVICE FOR LIFTING SLIDING MOLDS ALONG STEEL BARS FOR THE CONSTRUCTION OF CONCRETE BUILDINGS AND THE LIKE

Bernhard Ahl, Am Zehnpfennigshof 13, 5000 Köln 50, Fed. Rep. of Germany

Filed Nov. 19, 1980, Ser. No. 208,379
Claims priority, application Fed. Rep. of Germany, Nov. 23, 1979, 2947210
Int. Cl.³ E04G 11/22
U.S. Cl. 425—65 13 Claims



1. Apparatus for successively lifting sliding molds during constructuion of the wall of a concrete building or the like wherein said wall may be straight or curved and may have a variable cross-section, said apparatus comprising:

(a) a plurality of hoist means;

(b) a plurality of yoke structures, each of said yoke structures comprising a lower, substantially horizontal traverse secured to one of said hoist means, an upper substantially horizontal traverse along said hoist means, spaced substantially parallel inner and outer yoke posts extending between said lower and upper traverses whereby said lower and upper traverses and inner and outer yoke posts together form a parallelogram configuration, said yoke posts extending below said lower traverse, means pivotally connecting said inner and outer yoke posts to said lower and upper traverses at the corners of said parallelogram, and means adjustable in length and pivotally connected at one end to one of said inner and outer yoke posts and at

the opposite end to one of said lower and upper traverses at points on said one yoke post and one traverse spaced from the pivot means connecting said one yoke post to said one traverse for changing the angular relationship of said yoke posts and traverses forming said parallelogram configuration;

(c) a plurality of star beams arranged in a radial configuration above said plurality of yoke structures;

(d) means displaceably securing each of said yoke structures to one of said star beams and adjustment means to move each of said yoke structures radially along the respective star beam;

(e) an inner sliding mold of annular configuration connected to and supported by the plurality of said inner yoke posts; and

(f) an outer sliding mold of annular configuration spaced from and surrounding said inner annular sliding mold and connected to and supported by the plurality of said outer yoke posts;

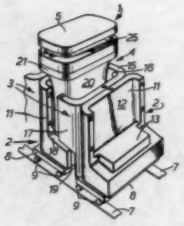
(g) whereby the inclination of said inner and outer yoke posts and said inner and outer sliding molds may be adjusted by adjustment of the length of said braces, said yoke structures and inner and outer sliding molds may be moved upwardly by said hoists, and said yoke structures and inner and outer sliding molds may be moved radially by said moving means.

4,374,635

CASTING INSTALLATIONS

Alberto Carucci, Cassino, Italy, and Bernard C. Moore, Ohain, Belgium, assignors to American Standard Inc., New York, N.Y.

Filed Apr. 6, 1979, Ser. No. 27,564
Claims priority, application Italy, Apr. 17, 1978, 46840 A/78
Int. Cl.³ B28B *5/04, 1/26*
U.S. Cl. 425—441 **6 Claims**



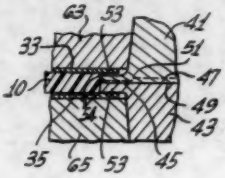
1. A mold unit for casting ceramic material in slip form, comprising a plurality of mold parts which are adapted to be assembled for a casting operation to define between them two casting cavities arranged, in the casting position of the mold unit, one above the other, into which slip can be introduced and which correspond respectively to the shapes of discrete articles, one of the mold parts having a core for shaping the article to be cast in the lower cavity of the mold unit and in its upper surface a separate cavity portion forming, with a top part of the mold unit, the upper cavity of the mold unit; said lower mold cavity being defined by two cooperating side mold members, each having a horizontal cross-section of two channel-shapes, back to back, two of said channel-shapes facing each other to form said lower cavity, and each of the remaining channel-shapes of said mold member being adapted to cooperate with adjacent mold members to form a succession of similar units, the base of each said mold unit being defined by but one of said mold members.

4,374,636

APPARATUS FOR PRODUCING CENTRALLY APERTURED RECORD DISCS

John R. Holmes, Garden Grove, Calif., assignor to Discovision Associates, Costa Mesa, Calif.

Continuation of Ser. No. 263,435, May 14, 1981, abandoned, which is a continuation of Ser. No. 31,205, Apr. 18, 1979, abandoned. This application Apr. 15, 1982, Ser. No. 368,791
Int. Cl.³ B29D *17/00;* **B29F** *1/06, 1/08, 1/14*
U.S. Cl. 425—589 **5 Claims**



1. A molding apparatus for producing record discs, comprising:

first and second mold halves reciprocally movable with respect to each other between a closed position, wherein the parting line between the two mold halves is closed and an annular cavity is formed therebetween, and wherein a molten material can be injected into the annular cavity to form a record disc, and an open position, wherein the parting line is open and the molded record disc can be removed;

a planar, disc-shaped stamper secured to one of said first and second mold halves, said stamper defining one side of the annular cavity; and

means for limiting the reciprocal movements of said first and second mold halves, to define said closed position, said means including

a first annular ring fixedly secured to said first mold half, said first ring having an outwardly-facing abutment face, and

a second annular ring fixedly secured to said second mold half, said second ring having an outwardly-facing abutment face for abutment with the abutment face of said first ring when the apparatus is in said closed position, the inner peripheries of said first and second rings defining the perimeter of said annular cavity,

wherein the inner periphery of the annular ring for the mold half carrying said stamper is defined by an inwardly projecting annular foot that retains the outer periphery of the stamper, said annular foot being spaced from said mold half by a distance greater than the thickness of said stamper to permit the stamper to expand radially, without substantial frictional resistance, when heated by the molten material injected into the cavity,

and wherein at least one of said first and second rings includes means for venting air from the cavity whenever molten material is being injected therein.

4,374,637

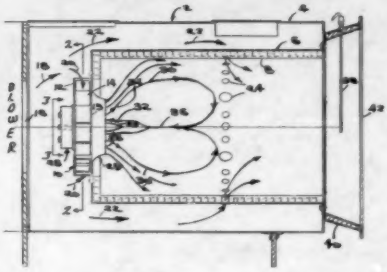
BURNER CONSTRUCTION

Eugene B. Zwick, Huntington Beach; Dung D. Nguyen, Fullerton; William D. Brigham, Westminister, and Kenneth Hoffman, Fountain Valley, all of Calif., assignors to Zwick Energy Research Organization, Inc., Santa Ana, Calif.

Filed Oct. 31, 1978, Ser. No. 956,375
Int. Cl.³ F23M *9/00*
U.S. Cl. 431—183 **16 Claims**

1. A fuel burner comprising means forming a burner chamber of cylindrical shape and defining a burner axis therein, said chamber having an inlet opening at one end and including a peripheral cylindrical wall extending from one end to the other

and displaced from said axis by a predetermined radial dimension, means forming a vortex box disposed in coupled relation to said inlet opening for introducing combustion air into said body and along said axis, said vortex box having a plurality of internal vanes arranged in a circle surrounding said axis and radially tilted thereto for imparting spiral flow to air passing through and along the axis of said burner, port means coupling said vortex box to said chamber and having a radial dimension from the axis which is less than the radial dimension of said burner wall, said coupling means and burner wall being constructed and arranged to form an expansion step for combustion air flowing therebetween so that a flow pattern through the burner is established in which combustion air is introduced through said inlet in an axial direction to produce a swirling air flow about said axis and along a generally cylindrically annular combustion zone, the combustion air moving forwardly and



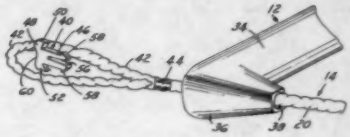
outwardly as it passes past the step and through said zone, a portion thereof recirculating by moving in a rearward direction along the axis of the burner and towards the inlet opening and vortex box to produce a secondary flow in opposition to the general flow of combustion air therethrough to thereby establish a stagnant air region at the inlet to said burner which region remains relatively constant with respect to the overall flow rate of combustion air therethrough, pilot injector means for injecting a limited quantity of liquid fuel into said stagnant region and directed along the axis of said chamber, said fuel being ignited therein to form a stable pilot flame for said burner, main fuel injector means for injecting finely divided liquid fuel generally along said burner axis and into the region of said combustion zone, said injector means being constructed and arranged to limit the injected liquid to a region bounded by a cylindrical surface surrounding said stagnant zone and extending radially therefrom to said main fuel injector means.

4,374,638

WATER SKI HANDLE AND TOW ROPE ARRANGEMENT

Dwight W. Presser, P.O. Box 5264, W. Bloomfield Twp., Oakland County, Mich. 48033

Filed Nov. 28, 1980, Ser. No. 211,271
Int. Cl.³ A63C *15/06*
U.S. Cl. 441—69 **8 Claims**



1. A ski tow arrangement for water skiing comprising an elongated handle having a handle axis, at least one opening extending through said handle transversely of said axis from a forward edge of said handle to a rearward edge and a surface pocket at said rearward edge continuously adjacent to said opening, a tow line of hollow braided construction terminating in a free end interwoven into itself to form a self-tightening closed loop extending into said opening from said forward edge to said rearward edge, and a T-shaped retainer element of flat planar construction having uniform thickness disposed within said loop and comprising a central leg portion extending into said opening and a head portion with a pair of wings coplanar with said leg portion received in said pocket externally of said opening and projecting oppositely transversely of said axis within said pocket for holding said retainer element in an orientation perpendicular to said axis and preventing removal of said loop forwardly through said opening.

4,374,639

SYSTEM FOR PREVENTING STATIC ELECTRICITY ON LAUNDERED TEXTILE MATERIALS

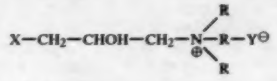
Barbara T. Claiborne, Hixson, Tenn., assignor to Dixie Yarns, Inc., Chattanooga

Filed Apr. 3, 1980, Ser. No. 137,474
Int. Cl.³ B08B *3/00*
U.S. Cl. 8—137 **7 Claims**

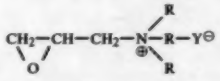
1. A method of preventing accumulation of static electricity on textile materials which have been wetted in a bath and then tumble dried, comprising: providing a laundry bath with a plurality of textile materials therein,

placing in said bath a static electricity preventing member comprising a textile substrate material reacted with a static electricity preventing material, said material comprising a compound from the group consisting of:

a N-trisubstituted ammonium-2-hydroxy-3-halopropyl compound having the general formula



or a salt of epoxy propyl ammonium having the general formula



wherein X is a halogen radical, Y is chloride, bromide, sulfate or sulfonate, and the R's are methyl, ethyl, butyl or benzyl groups or an hydroxyl substituted derivative thereof,

said static preventing member being in said bath during at least the final rinse stage of a laundering procedure,

and then tumble drying said plurality of textile materials without the static preventing member, whereby said textile materials when thus dried do not exhibit static cling.

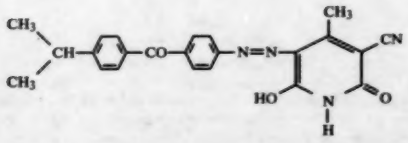
4,374,640

DYEING-STABLE MODIFICATION OF A DISPERSE DYESTUFF, PROCESSES FOR ITS PREPARATION AND USE

Horst Tappe, Dietzenbach; Hans Mayer, and Klaus Hofmann, both of Frankfurt am Main, all of Fed. Rep. of Germany, assignors to Cassella Aktiengesellschaft, Frankfurt, Fed. Rep. of Germany

Filed Mar. 29, 1982, Ser. No. 362,976
Claims priority, application Fed. Rep. of Germany, Jun. 26, 1981, 3125159
Int. Cl.³ C09B *67/48*; D06P *67/02*
U.S. Cl. 8—526 **10 Claims**

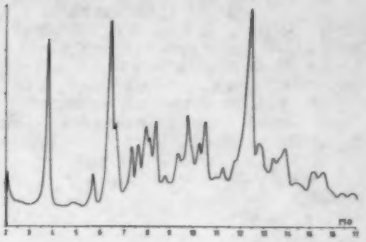
1. A dyestuff stable under dyeing conditions and being the *β*-modification of a compound of the formula I



(I)

having an X-ray diffraction pattern under Cu-K*α*-radiation with high intensity lines at a diffraction angle in *θ* degrees of 3.75, 6.40 and 12.35;

medium intensity lines at a diffraction angle in *θ* degrees of 6.60, 7.30, 7.60, 7.90, 8.10, 8.35, 9.30, 9.70, 9.90, 10.20, 10.50, 12.70 and 13.90;



and low intensity lines at a diffraction angle in *θ* degrees of 5.65, 8.75, 11.25, 11.70, 13.35, 15.10 and 15.55.

4,374,641

POLYMERIC COLOR CONCENTRATES FOR THERMOPLASTIC POLYMERIC MATERIALS

Dominick A. Burlone, Anderson, S.C., assignor to Badische Corporation, Williamsburg, Va.

Continuation of Ser. No. 62,841, Aug. 1, 1979, abandoned. This application Jun. 5, 1980, Ser. No. 156,716
Int. Cl.³ D06P *3/00*
U.S. Cl. 8—557 **7 Claims**

1. A color concentrate for coloring thermoplastic polymeric materials, the concentrate comprising a blend of the following two essential components, from which blend any solvent present during processing is subsequently removed:

(A) A water- or polar organic solvent-dispersible polycondensation or addition polymer polymerized from condensable or unsaturated monomers containing functional groups capable of solubilizing or dispersing the polymer in water or in polar organic solvents, and which is capable of being:

(1) utilized in the preparation of 1–95% solution or dispersion;

(2) recovered from a 1–95% solution or dispersion thereof at a temperature which will not cause substantial volatilization or degradation thereof;

(3) fused at a temperature between about 130° and 350° C.;

(4) melted with the thermoplastic polymeric material to be colored without substantial degradation or reaction and without any visible separation therefrom on a microscopic scale; and

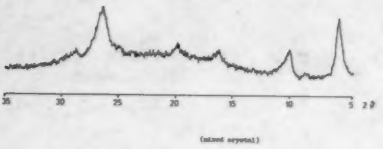
(5) utilized to wet the surface of pigments by adhesion thereto; and

(B) A heat-stable, chemically-inert coloring agent selected from the group consisting of: water-soluble dyes; polar organic solvent-soluble dyes; polymer-soluble dyes; and pigments, the coloring agent causing no visible chemical reaction with the thermoplastic polymeric material to be colored or the water- or polar organic solvent-dispersible polycondensation or addition polymer.

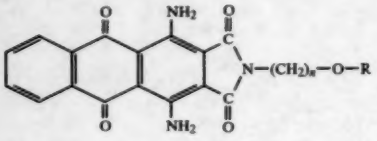
4,374,642
DYESTUFF MIXTURES, A PROCESS FOR THEIR PREPARATION AND A PROCESS FOR DYEING HYDROPHOBIC FIBRES

Horst Brandt, Odenthal; Reinhold Hörnle, Cologne; Richard Büchele, and Dieter Wiegner, both of Odenthal, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Jun. 1, 1981, Ser. No. 268,965
Claims priority, application Fed. Rep. of Germany, Jun. 21, 1980, 3023330
Int. Cl.³ C09B *67/22*
U.S. Cl. 8—639 6 Claims

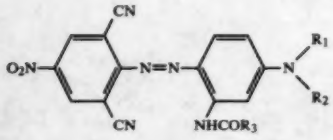


1. Dyestuff mixed crystals consisting of 75–99 percent by weight of (a) at least one dyestuff of the formula



(I)

wherein
R is C_1–C_4-alkyl and
n is 2, 3 or 4,
and 1–25 percent by weight of (b) at least one dyestuff of the formula



(II)

wherein
R_1 and R_2 each is C_1–C_5-alkyl and
R_3 is C_1–C_2-alkyl,
the X-ray diffraction diagram of the crystals having reflection intensities of 100, 26, 14 and 54 at the angles of incidence θ of 5.75°, 10.0°, 16.2° and 26.4°.

4,374,643
COLOR SALTS OF BASIC DYES WITH ACIDIC OPTICAL BRIGHTENERS OF STILBENE TYPE

Kazuaki Suzuki, Osaka, and Shobei Kuwabara, Suita, both of Japan, assignors to Showa Kagaku Kogyo Co., Ltd, Kawanishi, Japan

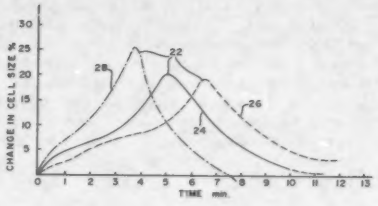
Filed Jul. 20, 1981, Ser. No. 284,532
Claims priority, application Japan, Jul. 22, 1980, 55-99345
Int. Cl.³ C09B *23/14*; D06P *1/41*
U.S. Cl. 8—648 6 Claims

1. A color salt consisting of a stilbene type optical brightener component having at least one anionic group and a color component having at least one basic group capable of forming a salt with the anionic group.

4,374,644
BLOOD CELL VOLUME MONITORING

Douglas Armstrong, Coral Springs, Fla., assignor to Coulter Electronics, Inc., Hialeah, Fla.

Filed Apr. 6, 1981, Ser. No. 251,668
Int. Cl.³ G01N *27/04, 33/50*
U.S. Cl. 436—63 13 Claims

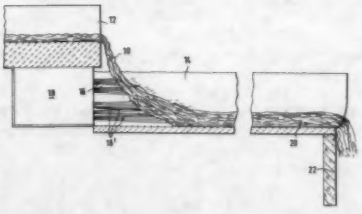


1. A method of testing cells comprising the steps of:
forming a mixture of at least one portion of a cell sample with a cell volume increasing solution having a predetermined, substantially unchanging composition, the cells of said cell sample each having an original volume;
causing the cells to reside in said mixture for at least a predetermined duration during which the cells attain a change increase in their volume as compared to their original volume, the amount of said change depending upon the time of immersion of the cells in said cell volume increasing solution and the innate and acquired properties of each cell;
measuring the change of volume of the cells as a function of time; and
employing said measured differences in cell volume to define data which is capable of being compared with cell volume data representative of a known health or physiological condition.

4,374,645
PROCESS FOR GRANULATION OF SLAG

Guido Monteyne, Lembeke, Belgium, assignor to Paul Wurth S.A., Luxembourg

Filed May 28, 1981, Ser. No. 267,880
Claims priority, application Luxembourg, Jul. 4, 1980, 82585
Int. Cl.³ B01J *2/02*
U.S. Cl. 23—293 A 11 Claims



1. In a process for the granulation of molten slag, the molten slag being wet by a stream of liquid to cause solidification of the molten slag in the form of granules which are transported by the stream, the improvement comprising:
establishing a stream of liquid having at least first and second liquid current components of different pressures and temperatures commensurate with different functions to be performed, the pressure and temperature of said first current component being higher than the pressure and temperature of said second current component;

causing a flow of molten slag to be intercepted and wet by said first liquid current component at the higher temperature and higher pressure of said first liquid current component, said first liquid current component primarily serving to effect the granulation of said molten slag; and

entraining the granulated slag in said second liquid current component, said second liquid current component being at the lower temperature and pressure of said second liquid current component, to transport the slag to a desired destination;

the temperature and pressure of said first liquid current component being commensurate with requirements for granulation of the slag and the temperature and pressure of said second liquid current component being commensurate with requirements for transporting the slag.

4,374,646

PROCESS OF MAKING AN IMPROVED COMBUSTIBLE GEL AND PRODUCT

Edward O. Hayes, Mesa, Ariz., assignor to National Research Development, Inc., Scottsdale, Ariz.

Filed Apr. 30, 1980, Ser. No. 145,305
Int. Cl.³ C10L 7/00
U.S. Cl. 44—7 D **4 Claims**

1. A process for making a combustible gel comprising soaking calcium carbide in a lower alkylene glycol which contains a small amount of water in a closed space in amounts sufficient and for a time sufficient to produce the gel.

2. A process according to claim 1 in which the glycol is ethylene glycol.

4. A combustible gel produced by the process of claim 1 or 2.

4,374,647

OXYGENATED FUEL DEHYDRATION

Susan A. Bezman, Point Richmond, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Filed Jun. 25, 1981, Ser. No. 277,294
Int. Cl.³ C10L 1/22
U.S. Cl. 44—56 **6 Claims**

1. A method for dehydrating a fuel composition which comprises at least one gasoline blending hydrocarbon component, isopropanol and water, the method comprising contacting the fuel composition with a saponified starch-g-polyacrylonitrile polymer, wherein the weight ratio of fuel consumption to polymer is from about 2:1 to 100:1.

4,374,648

MOTOR FUEL COMPOSITION

W. Alan Sweeney, Larkspur, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Continuation-in-part of Ser. No. 155,044, May 30, 1980, Pat. No. 4,302,214. This application Aug. 10, 1981, Ser. No. 291,691
The portion of the term of this patent subsequent to Nov. 24, 1998, has been disclaimed.
Int. Cl.³ C10L 1/18
U.S. Cl. 44—56 **6 Claims**

1. A gasoline major fuel comprising a major portion of gasoline-boiling-range compounds and from 0.1 to 49 volume percent di-(t-butoxy)methane.

4,374,649

FLAME ARRESTOR

Subbarao N. Rao, Ridgewood, N.J., assignor to Buras & Roe, Inc., Oradell, N.J.

Filed Feb. 12, 1981, Ser. No. 233,769
Int. Cl.³ F17D 3/00; B01F 3/04
U.S. Cl. 48—192 **4 Claims**

1. A flash arrestor comprising:

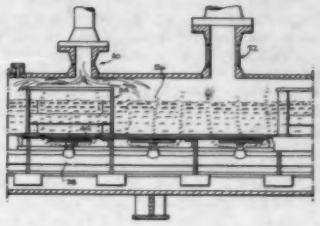
a drum containing a perdetermined quantity of fluid;

a closure means at each end of the drum for closing the same;

conduit means disposed within said drum and extending through one of said closure means;

bubbler means associated with the upper region of said conduit means at a level below the fluid level in said drum;

wherein the longitudinal axes of said drum and said conduit means are parallel and horizontal, said conduit means extending substantially the full length of said drum and said bubbler means includes a nipple having an aperture for effecting fluid flow communication between the interior of said conduit means and said drum below the fluid level thereof and a solid baffle plate horizontally disposed above said nipple and below the fluid level, arranged to disperse said bubbles horizontally beneath the fluid level in said drum, and a perforated plate is disposed within said drum below the fluid level and above said solid baffle plate; and Outlet means in said drum above the fluid level therein wherein flash distribution means are provided between said outlet means and the fluid level in said drum.

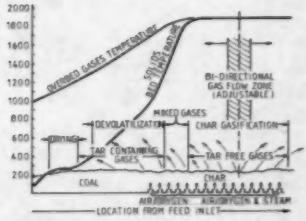


4,374,650

BI-FLOW ROTARY KILN COAL GASIFICATION PROCESS

Peter G. Garside, Waukesha, Wis., assignor to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed May 18, 1981, Ser. No. 264,479
Int. Cl.³ C10J 3/06
U.S. Cl. 48—202 **8 Claims**



1. A dry process for continuously gasifying unsized particles of coal which upon being progressively heated to a final temperature of approximately 2,000° F. through heat treatment stages in which the coal gives off a combustible mixture of gases containing water vapor, hydrogen, carbon monoxide, carbon dioxide, hydrocarbon vapors (tar-laden) and smoke (aerosols) and hydrocarbon-free gases (tar-free) at 1,600°–2,000° F. in a final and highest temperature stage of said series of stages, with said treatment stages each being achieved in zone within a rotary kiln inclined downwardly from a material inlet toward a material outlet, the process comprising the steps of:

(a) feeding a continuous supply of said coal to the inlet to form a bed of the coal in the kiln, and rotating the kiln to advance the bed from the inlet to the outlet of the kiln;

(b) increasing the temperature of the bed progressively as the coal is advanced through said heat treatment stages to increase the temperature of the coal in the final stage to approximately 2,000° F. and the temperature of the hydrocarbon-free gases liberated in the final stage to approximately 1,900° F.;

(c) admitting air and steam through the kiln shell and bed of coal where the coal is heated to at least a tar-free gasification temperature and at locations in a plurality of radial planes spaced apart along the central axis of the kiln;

(d) selectively controlling the discharge of a proportion of the process gas from each end of the kiln to split into two streams the tar-free gas produced by air and steam passing through the coal and draw the split tar-free gas streams apart to flow in axially opposite directions within the kiln with one of the tar-free gas streams flowing axially away from the zone in which tar-laden gases emerge from coal heated to devolatilization temperature and toward the material outlet of the kiln for discharge from the kiln as tar-free gas, and with the tar-free gas stream flowing toward the material inlet of the kiln mixing with said emerging tar-laden gases to flush tar-laden gases out the material inlet end of the kiln and away from the stream of tar-free gases flowing toward and out the material outlet end of the kiln; and

(e) adjusting the proportion of process gases discharged out each end of the kiln to move the location of the tar-free gas flow split along the central axis of the kiln to a position between the beginning of said tar-free gasification stage and the material outlet end of the kiln with said position of the split selected to maintain a maximum attainable flow of tar-free gas out the material discharge end of the kiln while maintaining the temperature of the mixed gases flowing out the material feed end of the kiln at above tar condensing temperature.

4,374,651
COMPOSITE OF METAL-BONDED CUBIC BORON NITRIDE AND A SUBSTRATE AND PROCESS OF PREPARATION

Minyoung Lee, Schenectady, and Lawrence E. Szala, Scotia, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Sep. 28, 1981, Ser. No. 305,865
Int. Cl.³ B24D *3/02*
U.S. Cl. 51—309 21 Claims

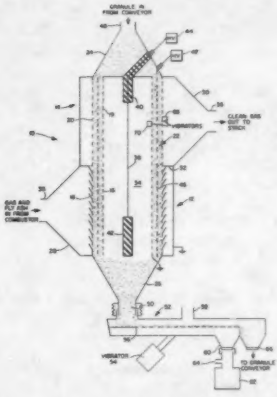
1. In a process for cementing a quantity of cubic boron nitride particles together and bonding the cemented cubic boron nitride particles to a substrate to form a composite abrasive article wherein an assembly comprising a volume of said cubic boron nitride particles, substrate precursor material, an aluminum atom-yielding medium and containment means therefor is provided in a stabilized geometry and said assembly of stabilized geometry is hot-pressed by the simultaneous application thereto of heat and pressure, said hot-pressing being at a temperature substantially in excess of the melting point of said aluminum atom-yielding medium and at a pressure sufficiently high to cause molten aluminum atom-yielding medium to infiltrate the interstices between said cubic boron nitride particles, the improvement comprising:

(a) deriving said substrate and the aluminum atom-yielding medium for said cubic boron nitride particles from a single multi-component source, said multi-component source comprising a mixture of ceramic particles and particles of said aluminum atom-yielding medium, the latter being present in a quantity between about 30 and 60 percent of the volume of the completed composite abrasive article.

4,374,652
FILTER APPARATUS AND METHOD FOR COLLECTING FLY ASH AND FINE DUST

Karim Zahedi, Brookline, and Jeffrey C. Alexander, Reading, both of Mass., assignors to EFB Inc., Woburn, Mass.

Division of Ser. No. 69,046, Aug. 23, 1979, Pat. No. 4,308,036.
This application Aug. 20, 1981, Ser. No. 294,525
The portion of the term of this patent subsequent to Dec. 29, 1998, has been disclaimed.
Int. Cl.³ B03C *3/00*
U.S. Cl. 55—6 8 Claims

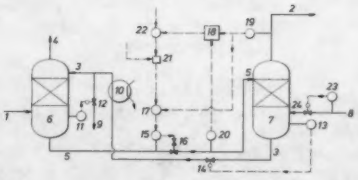


8. A method of removing particulate from a gas stream comprising providing a first filter having a tubular granular bed, providing a second filter having a tubular granular bed, the second filter being located above the first filter with the beds aligned, passing a gas stream containing particulate inwardly through the first filter and then outwardly through the second filter, moving the particulate in series through the second filter and then through the first filter, electrifying the granules in the second filter for the collection of particulate, and, interiorly of the first filter, electrically charging particulate in the gas stream before it passes through the second filter.

4,374,653
PROCESS CONTROL

Anne D. Freye, Amsterdam, and Johan A. van Arkel, The Hague, both of Netherlands, assignors to Shell Oil Company, Houston, Tex.

Continuation of Ser. No. 739,169, Nov. 5, 1976, abandoned. This application Mar. 27, 1978, Ser. No. 890,356
Int. Cl.³ B01D *53/14*
U.S. Cl. 55—18 3 Claims



1. In a process for the removal and treatment of SO_2 from a gas stream containing SO_2, wherein the gas stream is contacted

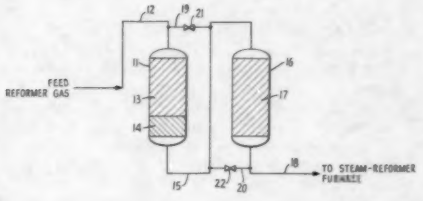
in an absorption zone with a liquid absorbent that is selective for SO_2 to produce a SO_2-containing absorbent and a purified gas stream; the SO_2-containing absorbent is passed to a stripping zone and stripped to produce a regenerated absorbent and an SO_2-containing gas flow; and the regenerated absorbent is returned to the absorption zone, the improvement comprising, uniformizing the amount of SO_2 in the SO_2 gas flow by adjusting the flow of the SO_2-containing absorbent to the stripping zone in response to the output signal from a flow controller which compares the measured value of the rate of the SO_2-containing gas flow with a set value, the set value in turn being the output signal from an SO_2-concentration controller which compares a signal corresponding to the SO_2-concentration in the SO_2-containing absorbent with a set value for that concentration.

4,374,654

ABSORPTIVE SEPARATION OF HCL AND H_2S FROM CATALYTIC REFORMER OFFGAS

Charles S. McCoy, Orinda, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Filed Aug. 3, 1981, Ser. No. 289,172
Int. Cl.³ B01D *53/04*
U.S. Cl. 55—71 **6 Claims**



1. A substantially continuous adsorptive separation process for removing HCl and H_2S from a catalytic reforming offgas that contains less than about 10 ppm each of HCl and H_2S to make the offgas useful as a feedgas for a steam reforming process comprising:

(a) passing the offgas at a temperature in the range of about 40° C. to 70° C. through a molecular sieve or activated alumina bed that adsorbs HCl selectively from the offgas, and

(b) thereafter passing the HCl-depleted offgas at said temperature through a zinc oxide bed that adsorbs H_2S from the offgas, whereby HCl and H_2S are removed from the offgas to an extent that the HCl and H_2S contents of the offgas leaving the beds are below that which would significantly poison a steam reforming catalyst.

6. A substantially continuous adsorptive separation process for removing HCl and H_2S from a catalytic reforming offgas that contains less than about 10 ppm each of HCl and H_2S to make the offgas useful as a feedgas for a steam reforming process comprising:

(a) passing the offgas at a temperature in the range of about 40° C. to 70° C. through an activated alumina bed that adsorbs HCl selectively from the offgas, and

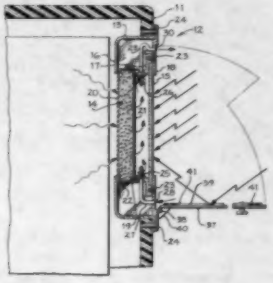
(b) thereafter passing the HCl-depleted offgas at said temperature through a zinc oxide bed that adsorbs H_2S from the offgas, whereby HCl and H_2S are removed from the offgas to an extent that the HCl and H_2S contents of the offgas leaving the beds are below that which would significantly poison a steam reforming catalyst.

4,374,655

HUMIDITY CONTROLLER

Philomena Grodzka, Huntsville; Paul O. McCormick, Athens, and James W. Fletcher, Huntsville, all of Ala., assignors to Lockheed Missiles & Space Company, Inc., Sunnyvale, Calif.

Filed Dec. 7, 1981, Ser. No. 327,895
Int. Cl.³ B01D *53/04*
U.S. Cl. 55—163 **16 Claims**



1. A humidity controller for installation in an apertured portion of a wall of a storage container, said humidity controller comprising:

(a) a frame assembly insertable into said apertured portion of said wall, said frame assembly being securable to said wall;

(b) a bed of solid desiccant material for removing moisture from said container, said bed of desiccant material being positioned by said frame assembly inside said container when said frame assembly is inserted into said apertured portion of said wall;

(c) a cover that is substantially transparent to solar energy, said transparent cover being positioned by said frame assembly apart from said bed of desiccant material and overlying said apertured portion of said wall when said frame assembly is inserted into said apertured portion of said wall, a passageway thereby being formed between said transparent cover and said bed of desiccant material, air in said passageway and a surface portion of said bed of desiccant material exposed to said air in said passageway being heated by solar energy transmitted through said transparent cover, heating of said surface portion of said bed of desiccant material causing moisture to pass from said bed of desiccant material into said passageway, said heated air in said passageway thereby becoming moisture-laden; and

(d) valve means attached to said frame assembly for enabling removal of said moisture-laden heated air from said passageway by convection.

4,374,656

APPARATUS FOR SOLVENT DEGASSING AND SOLVENT SUPPLY IN LIQUID CHROMATOGRAPHS

Helge Schrenker, Karlsruhe, and Peter Hupe, Baden-Baden, both of Fed. Rep. of Germany, assignors to Hewlett-Packard GmbH, Boeblingen, Fed. Rep. of Germany

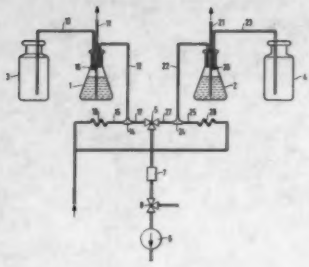
Filed Jun. 24, 1981, Ser. No. 276,848
Claims priority, application Fed. Rep. of Germany, Jun. 23, 1980, 3023383
Int. Cl.³ B01D *15/08*
U.S. Cl. 55—170 **5 Claims**

1. An apparatus for solvent degassing and solvent supply in a liquid chromatograph comprising:

at least one solvent storage vessel partly filled with liquid solvent, the remaining volume in said vessel forming a vapor volume;

means connecting a helium source to said vapor volume for avoiding re-absorption of air by the solvent;

a vacuum pump connected to said vapor volume via a suction line;



a solvent source connected to said vapor volume via a supply line; and

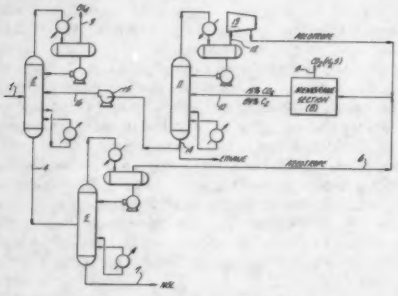
a pore filter terminating the supply line for said solvent source within said vapor volume.

4,374,657

PROCESS OF SEPARATING ACID GASES FROM HYDROCARBONS

Ronald L. Schendel, Hermosa Beach, and Frederic T. Selleck, Whittier, both of Calif., assignors to Fluor Corporation, Irvine, Calif.

Filed Jun. 3, 1981, Ser. No. 270,016
Int. Cl.³ B01D *59/12*
U.S. Cl. 62—19 **16 Claims**



1. A process of separating acid gases from hydrocarbons comprising separating methane from a hydrocarbon stream containing acid gases to produce a hydrocarbon stream substantially free from methane, and subsequently passing said substantially methane free hydrocarbon stream through a semipermeable membrane system to separate said acid gases from said hydrocarbon components, said acid gases passing through said membrane system at a substantially greater permeation rate than said hydrocarbon components.

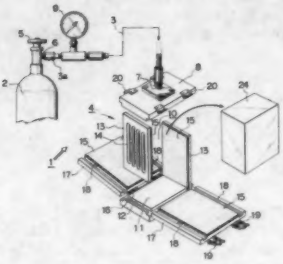
15. A process of separating acid gases from hydrocarbons comprising subjecting a hydrocarbon stream containing carbon dioxide and/or hydrogen sulfide to low temperature distillation to produce a hydrocarbon stream substantially free from methane, and subsequently passing said substantially methane-free stream through a semi-permeable membrane system to separate said acid gases from said hydrocarbon components and to produce a hydrocarbon rich stream, said acid gases passing through said membrane system at a substantially greater permeation rate than said hydrocarbon components.

4,374,658

DEVICE FOR PRODUCING A BLOCK OF SOLIDIFIED CARBON DIOXIDE

Yoshihisa Kawaguchi, 229-1-7, Akasaka 9-Chome, Minatoku, Tokyo, Japan

Continuation of Ser. No. 173,353, Jul. 29, 1980, abandoned. This application Nov. 19, 1981, Ser. No. 323,085
Claims priority, application Japan, Jul. 31, 1979, 54/104886[U]
Int. Cl.³ B29C *3/00*
U.S. Cl. 62—35 **20 Claims**



1. A device for producing a block of solidified carbon dioxide essentially comprising, in combination:

a high pressure vessel in which liquified carbon dioxide is contained,

a thermally insulated high pressure feed tube, and

a molding box comprising a single molding chamber in which the required product of solidified carbon dioxide is molded in the form of block,

one end of said high pressure feed tube being connected to said high pressure vessel via valve means comprising a stop valve and pressure reducing valve while the other end thereof being connected to said molding box via a nozzel means,

wherein said molding box is constructed in a cubic structure of square or rectangular configuration and essentially comprises a top cover having said nozzle means secured thereto, a pair of first side walls oppositely located in a fact-to-face relationship and a base board, each of said members being formed to define a square or rectangle and adapted to be connected to or disconnected from any one of the adjacent members,

said first and/or second side walls being formed with a plurality of openings through which gaseous carbon dioxide flows out and further being provided with a layer of filter material having a predetermined mesh size which filter material is fixedly secured to the inner wall thereof, respectively.

4,374,659

MULTIPLE GOB SHEARING APPARATUS

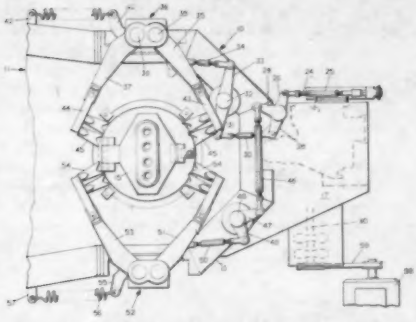
Donald G. Davey, Oregon, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio

Filed Dec. 23, 1981, Ser. No. 333,831
Int. Cl.³ C03B *5/38*
U.S. Cl. 65—334 **3 Claims**

1. Apparatus for shearing four or more streams of molten glass into gobs simultaneously comprising a motor driven cam, a lever pivoted at one end to a fixed support and with its other end movable, a cam follower carried by said lever intermediate its ends, a connecting rod connected to said movable end of said lever, a first bellcrank;

means connecting said rod to said first bellcrank, a pair of output crank arms connected to said first bellcrank, a second bellcrank, linkage means connecting said second

bellcrank to the output of the first bellcrank, a third bellcrank, linkage means connecting said third bellcrank to the other output of the first bellcrank, a first and second pair of shear blade carrying arms, each said pairs of arms being mounted for equal and opposite simultaneous movements about adjacent pivot axes, two or more shear blades carried at the ends of said arms opposite the pivot axis, a molten glass feeder having four or more downwardly extending orifices for discharging four or more streams of glass simultaneously, each pair of shear arms being pivoted between a position where its blades overlap on the



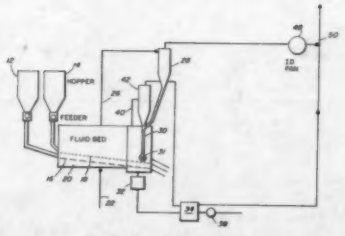
axis of two or more streams and the other pair of shear arms having its blades pivoted to overlap on the axis of the other two or more streams of glass, and linkage means from said second bellcrank to one arm of said pair of shear arms for operating said pair of shear arms to sever said streams into gobs, and linkage means from said third bellcrank to one of said other pair of shear arms for actuating said other pair of shear arms at precisely the same moment as the operation of the other shear arms whereby four or more streams of glass are simultaneously severed into gobs.

4,374,660

FLUIDIZED BED GLASS BATCH PREHEATER

Ravinder K. Sakhuja, Lexington; William E. Cole, Sudbury, and Dimitris Pavlakis, Cambridge, all of Mass., assignors to Thermo Electron Corporation, Waltham, Mass.

Filed Aug. 18, 1981, Ser. No. 293,913
Int. Cl.³ C03D *3/00*
U.S. Cl. 65—335 **7 Claims**



3. A glass batch preheater for operation in conjunction with a glass melting furnace having a regenerator comprising:

a preheater stage;

a relatively fine, inclined grate disposed within, and running the length of, said preheater stage;

means for supplying glass batch material to said preheater stage near the high end of said grate to form a shallow bed upon said relatively fine grate;

a relatively coarse, inclined grate disposed beneath and spaced from said first grate;

means for supplying exhaust gases from said regenerator upwardly through said bed of cullet upon said relatively coarse grate;

means for supplying cullet to said preheater stage near the high end of said relatively coarse grate to form a shallow bed of cullet upon said relatively coarse grate;

outlet means for removing glass batch material and cullet from said preheater stage; and

means for directing exhaust gases from said regenerator upwardly through said bed of cullet to heat said bed of cullet and trap particles entrained in said exhaust gases and upwardly through said bed of glass batch material to fluidize and heat said glass batch material.

4,374,661

GROWTH REGULATION PROCESS

Charles D. Fritz, Philadelphia; Wilbur F. Evans, Springhouse, and Anson R. Cooke, Horsham, all of Pa., assignors to Union Carbide Corporation, Danbury, Conn.

Continuation-in-part of Ser. No. 693,698, Dec. 27, 1967, abandoned, which is a continuation-in-part of Ser. No. 617,860, Feb. 23, 1967, abandoned. This application Oct. 24, 1969, Ser. No. 869,386
The portion of the term of this patent subsequent to Apr. 22, 1992, has been disclaimed.
Int. Cl.³ A01N *57/00*
U.S. Cl. 71—86 **24 Claims**

1. A method for regulating plant growth which comprises applying to the plant an effective but non-phototoxic amount with respect to the plant being treated, of 2-chloroethylphosphonic acid.

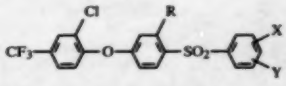
4,374,662

DIPHENYL SULFONE COMPOUNDS, AND THEIR PRODUCTION AND USE

Hiroyuki Konishi; Naganori Hino, Osaka; Hiroshi Matsumoto, Sonehigashi, and Ryo Yoshida, Kawanishi, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

Filed Nov. 6, 1981, Ser. No. 318,999
Claims priority, application Japan, Nov. 17, 1980, 55-162319
Int. Cl.³ A01N *41/10*; C07C *147/06*
U.S. Cl. 71—103 **11 Claims**

1. A compound of the formula:



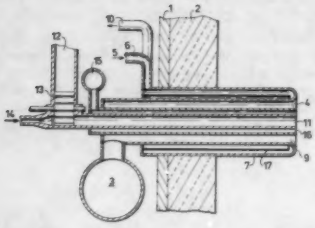
wherein R is a hydrogen atom or a lower alkoxy group and X and Y, being the same or different, are each a hydrogen atom, a halogen atom, a lower alkyl group, a lower alkoxy group, a carboxy(lower)alkoxy group or a lower alkoxycarbonyl(lower)alkoxy group.

11. A method for preventing or exterminating weeds which comprises applying a herbicidally effective amount of the compound according to claim 1 to the area where the weeds grow or will grow.

4,374,663
METHOD AND APPARATUS FOR REDUCING AN IRON OXIDE MATERIAL IN A FLUIDIZED BED

Per H. Collin, Stocksund, and Erik A. Bengtsson, Borlänge, both of Sweden, assignors to Stora Kopparbergs Bergslags AB, Falun, Sweden

Filed Jan. 14, 1981, Ser. No. 224,882
Claims priority, application Sweden, Jan. 16, 1982, 8000369
Int. Cl.³ C21B 13/02
U.S. Cl. 75—26 8 Claims



1. A method for the reduction of finely-divided iron oxide material in a fluidized bed reactor by means of reducing gases formed at the partial combustion of finely-divided carbonaceous material in the fluidized bed by a gas containing molecular oxygen, said gas being supplied to the fluidized bed through nozzles extending into the fluidized bed a distance at least twice the diameter of the nozzle, comprising: cooling the opening and the exterior surface of the nozzles to a temperature lower than 200° C. below the melting point of the reduced metal, the nozzles being thus cooled along a distance from their opening which is at least twice the inside diameter of the opening, by means of a coolant flowing through a cooling jacket.

4,374,664
PROCESS FOR DESULFURIZING MOLTEN PIG IRON

Toshiharu Mitsuo, Sakai; Takeshi Shoji, Takaishi, and Shin-ichi Sanuki, Kishiwada, all of Japan, assignors to Nippon Steel Corporation, Japan

Filed Feb. 15, 1980, Ser. No. 122,077
Claims priority, application Japan, Feb. 16, 1979, 54-16067
Int. Cl.³ C21C 7/02
U.S. Cl. 75—58 10 Claims

1. In a method for the desulfurization of molten pig iron by adding powdered aluminum and CaO to the molten pig iron, the improvement which comprises adding aluminum as a powder with CaO, alumina or both, whereby splashing associated with the addition of aluminum alone is reduced and wherein the aluminum is added in a quantity sufficient to have an aluminum concentration in the molten pig iron by weight % of (0.01–0.1)×(the concentration of silicon in the molten pig iron by weight %)+(0.2–1.0)× (concentration of sulfur by weight % to be removed from the molten pig iron).

4,374,665
MAGNETOSTRICTIVE DEVICES

Norman C. Koon, Woodbridge, Va., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Oct. 23, 1981, Ser. No. 314,327
Int. Cl.³ C22C 33/00
U.S. Cl. 75—123 E 20 Claims

1. In a magnetostrictive device, the improvement comprising a magnetostrictive component consisting essentially of an amorphous alloy represented by the formula:

$(M_wX_xB_{1-w-x})_{1-y}(R_zLa_{1-z})_y$ where w is from about 0.7 to about 0.9; x is from 0 to about 0.10; y is from about 0.05 to about 0.15; z is from 0 to about 0.95; M is selected from the class consisting of iron, cobalt, an iron-cobalt alloy, an iron-manganese alloy having at least 50 atomic percent iron, an iron-cobalt-manganese alloy having at least 50 percent iron and cobalt, X is a auxillary glass former selected from the class consisting of phosphorous, carbon, silicon, aluminum, arsenic, germanium, indium, antimony, bismuth, tin, and mixtures thereof, and R is a lanthanide selected from the class consisting of promethium, samarium, terbium, dysprosium, holmium, erbium thulium, and mixtures thereof.

4,374,666
STABILIZED FERRITIC STAINLESS STEEL FOR PREHEATER AND REHEATER EQUIPMENT APPLICATIONS

Thomas M. Devine, Jr., Scotia, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Continuation-in-part of Ser. No. 234,213, Feb. 13, 1981, abandoned. This application Mar. 16, 1981, Ser. No. 244,379
Int. Cl.³ C22C 38/28
U.S. Cl. 75—126 D 1 Claim

1. A titanium-stabilized and corrosion-resistant ferritic stainless steel which exhibits long-time stability against sensitization at intermediate service temperatures in the as-welded condition or following a high temperature anneal consisting essentially of, in weight percent,

Carbon	=	0.025% max
Nitrogen	=	0.025% max
Carbon + Nitrogen	=	0.045% max
$\left(\frac{\text{Titanium}}{\text{Carbon}}\right)$	≧	50
Silicon	=	1.0% max
Manganese	=	1.0% max
Phosphorous	=	0.04% max
Sulfur	=	0.03% max
Chromium	=	12–13%

the balance iron.

4,374,667
FERROVANADIUM CARBIDE ADDITION AGENTS AND PROCESS FOR THEIR PRODUCTION

Frederick H. Perfect, Wyomissing, Pa., assignor to Reading Alloys, Inc., Robesonia, Pa.

Filed Oct. 14, 1981, Ser. No. 311,339
Int. Cl.³ C22C 35/00
U.S. Cl. 420—424 3 Claims

1. A ferrovanadium carbide addition agent comprising 75 to 85% vanadium, 8 to 12% carbon, 8 to 12% iron, less than 2% oxygen and having a density of from about 5.8 to about 6.2.

4,374,668

GOLD BASED ELECTRICAL MATERIALS

Jaydev D. Desai, Clifton Park, and William G. Moffatt, Ballston Lake, both of N.Y., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Apr. 29, 1981, Ser. No. 258,829
Int. Cl.³ C22C 5/02
U.S. Cl. 420—507 4 Claims

1. A gold based electrical contact material comprising:
a solid solution consisting essentially of gold, and residual unoxidized cerium and a dispersion of cerium oxide, the cerium oxide having been formed by internal oxidation by subjecting the solid solution to an oxidizing atmosphere of oxygen at a temperature below the melting temperature of the solid solution.

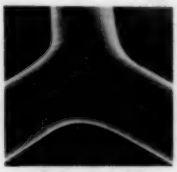
3. A gold based electrical contact material comprising:
a solid solution consisting essentially of gold, and residual unoxidized hafnium and a dispersion of hafnium oxide, the hafnium oxide having been formed by internal oxidation by subjecting the solid solution to an oxidizing atmosphere of oxygen at a temperature below the melting temperature of the solid solution.

4,374,669

CARDIOVASCULAR PROSTHETIC DEVICES AND IMPLANTS WITH POROUS SYSTEMS

David C. Mac Gregor, 81 Wimbleton Rd., Islington, Ontario, Canada

Division of Ser. No. 824,296, Aug. 15, 1977, Pat. No. 4,281,669, which is a continuation-in-part of Ser. No. 683,382, May 5, 1976, Pat. No. 4,101,984. This application Nov. 19, 1979, Ser. No. 95,151
Claims priority, application Canada, May 9, 1975, 226993; Aug. 13, 1976, 259054; United Kingdom, Dec. 22, 1975, 52474; Oct. 19, 1976, 43407
Int. Cl.³ F16H 13/00
U.S. Cl. 75—208 R 3 Claims



1. A method of formation of a composite structure in cardiovascular devices or implants constructed of rigid metal inert to blood to inhibit the incidence of thrombo-embolism and consisting of a rigid coherent metal substrate and a porous coating formed on and adhered to blood-engaging surfaces of said substrate consisting of a plurality of small discrete particles bonded together at their points of contact with each other in at least two layers to define a plurality of connected interstitial pores uniformly distributed throughout the coating, said method comprising:
roughening the coherent metal substrate surfaces desired to be coated,
forming a viscous self-supporting coating of a plurality of layers of at least one metal or at least one thermally-decomposable metal compound particles adhesively bound together and to the substrate,
drying said adhesive to provide a preform on said substrate; and
sintering said preform to cause interconnection of metal particles to each other and to said substrate.

4,374,670

AQUEOUS POLYMERIC LATEX COATING COMPOSITIONS, PRODUCTS PRODUCED THEREBY, METHODS FOR PREPARING SUCH COMPOSITIONS, AND METHODS FOR USING SUCH COMPOSITIONS

Robert J. Slocombe, University City, Mo., assignor to Monsanto Company, St. Louis, Mo.

Filed Jun. 16, 1977, Ser. No. 807,267
Int. Cl.² C09D 11/02
U.S. Cl. 106—20 33 Claims

1. A printing ink comprising
(i) a pigment and
(ii) a liquid coating composition comprising
(a) colloidal polymer particles of at least one polymer capable of being deposited in the form of a film;
(b) a precursor of a material capable of disrupting the colloidal stability of the polymer particles to cause film formation when said printing ink is applied to a substrate; and
(c) a liquid dispersion medium.

4,374,671

COLOR DEVELOPER, RECORDING UNIT HAVING A LAYER OF THE COLOR DEVELOPER AND PROCESS FOR PRODUCTION THEREOF

Takao Hayashi; Hajime Kato; Akio Miyamoto, and Makoto Yoshida, all of Fujinomiya, Japan

Continuation-in-part of Ser. No. 949,478, Oct. 10, 1978, abandoned, which is a continuation-in-part of Ser. No. 626,003, Oct. 28, 1975, abandoned, which is a continuation of Ser. No. 183,647, Sep. 24, 1971, abandoned. This application Mar. 13, 1980, Ser. No. 129,953
Claims priority, application Japan, Sep. 24, 1970, 45/83651; Oct. 23, 1970, 45/93245; Dec. 15, 1970, 45/112038; Dec. 26, 1970, 45/118979
Int. Cl.³ C09D 11/00
U.S. Cl. 106—21 12 Claims

1. A color developer capable of forming a distinct color when contacted with a color former, comprising zinc oxide, at least one acid selected from the group consisting of salicylic acid and nuclear substituted derivatives thereof and at least one metal silicate as an inorganic pigment in an amount sufficient to increase the color developing ability and light resistance of the color developer, said acid being present in an amount of about 1 to 100 parts by weight per 100 parts by weight of zinc oxide.

4,374,672

METHOD OF AND COMPOSITION FOR PRODUCING A STABILIZED FILL MATERIAL

Joseph Funston, Detroit; William C. Krell, Grosse Pointe Woods, and Franklin V. Zimmer, Southfield, all of Mich., assignors to The Detroit Edison Company, Detroit, Mich.

Continuation of Ser. No. 137,486, Apr. 4, 1980, abandoned. This application Oct. 19, 1981, Ser. No. 312,889
Int. Cl.³ C04B 7/02
U.S. Cl. 106—97 8 Claims

1. A method of producing and placing a stabilized fill material in water comprising mixing cement, fly ash and water in predetermined portions of approximately 45–80% by weight fly ash, 1–6% by weight Portland cement, and 20–50% by weight water and placing the fill material so produced directly in water while it is still in a flowable state.

4,374,673

STABLE DISPERSIONS OF FORTIFIED ROSIN

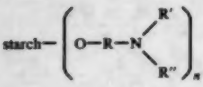
Paul H. Aldrich, London Britton Township, Chester County, Pa., assignor to Hercules Incorporated, Wilmington, Del.

Filed Dec. 31, 1980, Ser. No. 221,760
Int. Cl.³ C08L 93/04
U.S. Cl. 106—212 9 Claims

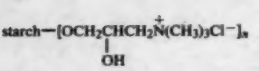
1. An aqueous dispersion of fortified rosin consisting essentially of, by weight, (A) from about 5% to about 50% fortified rosin; (B) from about 0.5% to about 10% of at least one water-

soluble or water-dispersible cationic starch dispersing agent; (C) from about 0.1% to 4% of at least one anionic surface active agent; and (D) water to 100%, component (B) being selected from

(I) a cationic starch having the formula



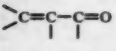
wherein R is alkylene, R' and R'' are each selected from the group consisting of alkyl, aryl, and aralkyl and n is from about 0.02 to about 0.05,



(II)

wherein n is as above defined, and

(III) starch—$(OCH_2CH_2NH_2)_n$ where n is above defined, said fortified rosin (A) being the adduct reaction product of rosin and an acidic compound containing the



group.

4,374,674

ULTRAVIOLET LIGHT ABSORBING AGENTS AND COMPOSITIONS AND ARTICLES CONTAINING SAME

Bruce A. Ashby, and Siegfried H. Schroeter, both of Schenectady, N.Y., assignors to General Electric Co., Waterford, N.Y.

Division of Ser. No. 154,622, May 30, 1980, Pat. No. 4,278,804. This application Jan. 15, 1981, Ser. No. 225,429

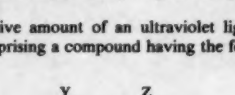
Int. Cl.³ C09K 3/00

U.S. Cl. 106—287.12 11 Claims

1. An aqueous coating composition, which comprises:

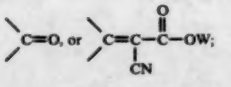
(a) a dispersion of a colloidal silica in a solution of the partial condensate of a silanol having the formula $RSi(OH)_3$ where R is selected from the group consisting of alkyl having 1 to 3 carbon atoms and aryl, at least 70 weight percent of which is $CH_3Si(OH)_3$ in a mixture of an aliphatic alcohol and water, said dispersion containing from 10 to 50 percent by weight of solids, said solids consisting essentially of 10 to 70 percent by weight of the colloidal silica and 30 to 90 percent by weight of the partial condensate, and

(b) an effective amount of an ultraviolet light absorbing agent comprising a compound having the formula



wherein:

X is



Y is H or OH;

Z is H, OH, OQ or OW, where at least one Z is OH if Y is H;

Q is $—CH_2(CH_2)_nSi(R_2)_x(OR_1)_y$; and

W is $—C_mH_{2m+1}$;

where x=0, 1 or 2, y=1, 2 or 3, x+y=3, and R_1=alkyl or alkanoyl having 1 to 6 carbon atoms, R_2=alkyl having from 1 to 6 carbon atoms, n=0, 1 or 2 and m=1 to 18.

4,374,675

POST-TREATED TITANIUM DIOXIDE AND PROCESS FOR PRODUCING SAME

Carlo Scotti, Voghera; Renato C. Tace, Alessandria, and Sergio Carra', Milan, all of Italy, assignors to Montedison, S.p.A., Italy

Filed Jan. 9, 1981, Ser. No. 223,553

Claims priority, application Italy, Jan. 11, 1980, 19156 A/80

Int. Cl.³ C09C 1/36

U.S. Cl. 106—300 11 Claims

1. Titanium dioxide particles of morphological and granulometric pigmentary characteristics, said particles having a chemically reactive coating consisting essentially of a mixture of oxide and oxichloride selected from the group consisting of Al_2O_3 and AlOCl, SiO_2 and $SiOCl_2$, and ZrO_2 and $ZrOCl_2$.

3. A process for the preparation of TiO_2 particles with pigmentary morphological and granulometric characteristics having a chemically reactive coating, said process comprising the steps of: activating the surface of the particles in a moving bed by thermally treating said particles with an anhydrous gas at temperatures between about 400° and about 600° C.; and thereupon further reacting said particles in a moving bed with an inorganic chloride selected from the group consisting of $AlCl_3$, $SiCl_4$ and $ZrCl_4$, in the presence of a carrier gas and at temperatures between about 350° and about 600° C.

9. A process for preparing a titanium dioxide pigment coated with organic substances selected from the group consisting essentially of substances containing aminic, carboxylic or hydroxylic groups capable of imparting to the pigments an affinity for organic substances for organic vehicles; wherein the chemically reactive coated TiO_2 particles prepared according to the process of claim 3, are reacted with organic substances having $—NH_2$; —COOH or —OH groups.

4,374,676

HEAT STABLE YELLOW IRON OXIDES CONTAINING ANTIMONY

Jihei Senda; Yoshihiro Inoue; Toshiaki Uenishi, all of Ube; Hidefumi Harada, Yamaguchi; Kouji Nakata, Ube; Akio Akagi, Ube, and Takanori Yamasaki, Ube, all of Japan, assignors to Titan Kogyo K.K., Japan

Continuation-in-part of Ser. No. 154,570, May 29, 1980, abandoned. This application Dec. 7, 1981, Ser. No. 327,868

Claims priority, application Japan, May 30, 1979, 54-66103

Int. Cl.³ C01G 49/02; C09C 1/24

U.S. Cl. 106—303 14 Claims

1. The preparation of a heat stable yellow iron oxide pigment, comprising:

(a) forming an aqueous dispersion of yellow iron oxide (α-FeOOH), the dispersion having the approximate composition of about 30 to about 200 parts yellow iron oxide per 1,000 parts water,

(b) adding thereto an aqueous alkaline solution of a soluble compound of antimony from the group consisting of sodium antimonite, potassium antimonite, $SbCl_3$, SbF_3 and $Sb_2(SO_4)_3$, the solution having the approximate composition of the antimony equivalent of about 0.03 to 20 parts antimony trioxide, about 40 to 80 parts alkali metal hydroxide, and about 400 parts water,

(c) diluting the resultant mixture, the diluting volume ranging from about 1.2 to about 5 volumes per original volume of mixture,

(d) separating the resultant produce into a solid phase and an aqueous phase, and

(e) recovering the solid phase.

14. A composition of α-Fe(OOH) having at least a partial film or coating of (FeSb)OOH solid solution.

4,374,677
PREPARATION OF IMPROVED HEAT STABLE YELLOW IRON OXIDE PIGMENTS

Jihei Senda; Yoshihiro Inoue; Toshiaki Uenishi, all of Ube; Hidefumi Harada, Yamaguchi; Kouji Nakata, and Akio Akagi, both of Ube, all of Japan, assignors to Titan Kogyo K.K. Japan, Japan

Continuation-in-part of Ser. No. 154,350, May 29, 1980, abandoned. This application Oct. 5, 1981, Ser. No. 308,338
Claims priority, application Japan, May 20, 1979, 54-66101
Int. Cl.³ C01G *49/02*; C09C *1/24*
U.S. Cl. 106—309 **6 Claims**

1. The preparation of a yellow iron oxide pigment having improved heat stability, comprising the steps of

(a) forming an aqueous slurry of from about 30 to about 200 parts yellow iron oxide (α-FeOOH), from about 1 to about 100 parts a soluble ferric salt, selected from the group consisting of ferric sulfate, ferric chloride, ferric nitrate, ferric oxalate, and ferric thiocyanate, an alkali metal hydroxide in an amount to provide the slurry with a pH of greater than 10 , and from about 20 to about 100 parts of a water-soluble or alkali-soluble aluminum compound, selected from the group consisting of sodium aluminate, potassium aluminate, aluminum chloride, potash alum, and aluminum nitrate, all based on 1000 parts water,

(b) subjecting the resultant mixture to a first hydrothermal treatment carried out at a temperature of from about 100° C. to about 240° C. for a time greater than 30 minutes,

(c) separating the treated mixture into a first solid phase and a first liquid phase,

(d) dispersing the first solid phase of step (c) in water,

(e) subjecting the first solid phase to a second hydrothermal treatment at a temperature of at least 250° C. to about 350° C. for a time greater than 30 minutes,

(f) separating the treated mixture into a second solid phase and a second liquid phase, and

(g) recovering the second solid phase and processing said phase to give a treated yellow iron pigment having an improved heat stability.

4,374,678
PROCESS FOR FORMING HGCOTE ALLOYS SELECTIVELY BY IR ILLUMINATION

Carlos A. Castro, Garland, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

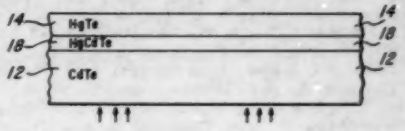
Filed Jun. 1, 1981, Ser. No. 269,292
Int. Cl.³ H01L *21/42, 21/423, 21/36*
U.S. Cl. 148—1.5 **13 Claims**

1. A process for forming an alloy of mercury, cadmium, and tellurium, having a desired bandgap, comprising the steps of:

providing a CdTe substrate;

depositing a layer of HgTe on said CdTe substrate;

illuminating said CdTe substrate, through a surface of said CdTe substrate on which said layer of HgTe was not

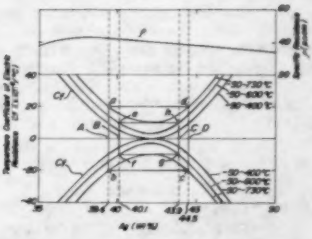


deposited, with infrared light having a wavelength longer than that which corresponds to the bandgap of the desired alloy of mercury, cadmium, and tellurium.

4,374,679
ELECTRICAL RESISTANT ARTICLE HAVING A SMALL TEMPERATURE DEPENDENCE OF ELECTRIC RESISTANCE OVER A WIDE TEMPERATURE RANGE AND A METHOD OF PRODUCING THE SAME

Hakaru Masumoto, and Naoji Nakamura, both of Sendai, Japan, assignors to The Foundation: The Research Institute of Electric and Magnetic Alloys, Sendai, Japan

Filed May 20, 1980, Ser. No. 151,712
Int. Cl.³ C22F *1/14*
U.S. Cl. 148—2 **3 Claims**



1. A method of producing electrical resistant alloys comprising, the step of melting a starting material consisting essentially of 55.5 to 60.6 wt. % of palladium and 44.5 to 39.4 wt. % of silver, pouring the melt into a mold and shaping it into a desired form of wire or thin sheet by hot working and cold working, heating the shaped article at a recrystallization temperature of 500° to 1,100° C. in air or a nonoxidizing atmosphere or in vacuo for a time of not less than 2 seconds to not more than 100 hours, and slow cooling it to remove internal stress to thereby obtain an alloy having a temperature coefficient of electric resistance of $\pm 20 \times 10^{-6}$/°C. over a temperature range of −50° C. to +730° C.

4,374,680

CORROSION-RESISTANT WELDABLE MARTENSITIC STAINLESS STEEL, PROCESS FOR THE MANUFACTURE THEREOF AND ARTICLES

Vladimir G. Azbukin, Iskrovsky prospekt. 28, kv. 430; Jury F. Balandin, ulitsa Basseinaya, 117, korpus 1; Igor V. Gorynin, ulitsa Gromova, 16, kv. 50; Lev Y. Gluskin, ulitsa Grafova, 2, kv. 37; Jury I. Zvezdin, Kostromskoi prospekt, 42, kv. 23; Alexandr G. Ignatenko, Grazhdansky prospekt, 23/2, kv. 74; Alexandr N. Krasnov, ulitsa Shotmana, 4, kv. 203, all of, Leningrad; Rostislav K. Melekhov, ulitsa Ugorskaya, 27, kv. 10, Lvov; Inna S. Osipova, ulitsa Ryleeva, 21, kv. 9, Leningrad; Valery N. Pavlov, Dmitrovsky pereulok, 11, kv. 16, Leningrad; Alexandr A. Khokhlov, ulitsa Karpinskogo, 23/1, kv. 15, Leningrad; Ivan A. Stepanov, ulitsa Chaikovskogo, 33, kv. 30, Leningrad; Alexandr F. Anfimov, ulitsa Ushinskogo, 7, korpus 1, kv. 39, Leningrad; Vasily V. Ardentov, ulitsa Gromova, 16, kv. 43, Leningrad; Viktor M. Burmakin, ulitsa Sedova, 86, kv. 199, Leningrad; Viktor A. Ignatov, ulitsa Sofii Kovalevskoi, 10, korpus 2, kv. 169, Leningrad; Eduard A. Rokhlin, Varshavskaya ulitsa, 58, kv. 91, Leningrad, and Vladimir V. Zhitkov, Promyshlennaya ulitsa, 38, kv. 66, Leningrad, all of U.S.S.R.

Division of Ser. No. 91,157, Nov. 5, 1979, Pat. No. 4,299,623. This application Mar. 23, 1981, Ser. No. 246,260

Int. Cl.³ C21D *1/18*; C22C *38/48, 38/50*

U.S. Cl. 148—2 2 Claims

1. A process for the manufacture of a corrosion-resistant weldable martensitic steel, residing in preparing a molten mass essentially consisting of carbon 0.06 to 0.10 weight percent, chromium 15.1 to 16.5 weight percent, nickel 3.5 to 4.45 weight percent, silicon 0.10 to 0.60 weight percent, manganese 0.20 to 0.50 weight percent, at least one element selected from the group consisting of niobium 0.25 to 0.40 weight percent and zirconium 0.05 to 0.20 weight percent, at least one element selected from the group consisting of yttrium 0.05 to 0.20 weight percent, cerium 0.05 to 0.15 weight percent and lanthanum 0.05 to 0.15 weight percent, phosphorus not exceeding 0.025 weight percent, sulfur not exceeding 0.02 weight percent, copper not exceeding 0.20 weight percent, the remainder being substantially iron and unavoidable impurities, pouring the molten mass into a mould and permitting it to solidify therein followed by cooling the obtained ingot, said cooling step being carried out in at least two stages, the first stage residing in cooling said ingot to a temperature laying in the martensite transformation start-end interval but not lower than to 100° C. and in its immediate heating up to tempering temperatures ranging from 600° to 650° C., each subsequent stage comprising cooling said ingot to martensite transformation temperatures but by at least 50° C. lower than the cooling temperature of the previous stage, thus bringing with such a multistage cooling the temperature of the ingot down to a value below the temperature of the end of martensite transformation, followed by final tempering in the temperature range from 600° to 650° C. and subsequent cooling to room temperature.

4,374,681

SYSTEM FOR CONTROLLING THE COMPOSITION OF CHEMICAL TREATMENT BATHS

John E. Schueneman, Waukegan, Ill., assignor to Coral Chemical Company, Waukegan, Ill.

Filed May 11, 1981, Ser. No. 262,288

Int. Cl.³ C23F *5/02*

U.S. Cl. 148—6.14 R 9 Claims

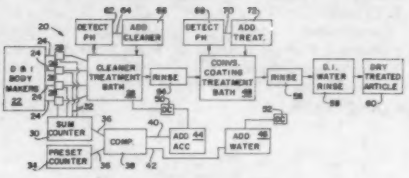
1. A control apparatus for detecting and controlling the composition of chemical cleaning and conversion coating treatment baths used in the production of individual manufactured metal articles, said apparatus comprising, in combination,

a containing tank means for receiving a chemical cleaning solution and containing tank means for receiving a chemical conversion coating solution,

a control system adapted to control periodic replenishment of the solutions in said chemical cleaning solution containing tank means and said chemical conversion coating containing tank means,

said control system including means for detecting the pH of said solutions in said tank means, first comparator means for comparing said pH to a predeterminable set point pH, and first dispensing means for delivery of a predeterminable volume of replenishing fluid to said tank means in response to said detected and set point pHs,

second dispensing means for adding a predeterminable amount of chemical cleaning accelerator to said chemical cleaning solution containing tank means, said second dispensing means including counting means for determining the number of manufactured articles supplied from time to time to said cleaning and treatment tank means,



second comparator means for comparing the number of said articles supplied for treatment to a set point number, and

coincidence determining means responsive to coincidence in said number of articles counted and said set point number for energizing said adding means, whereby the conditions in said cleaning and treating tanks may be made to depend both on pH conditions in said tanks and on the number of articles treated by said apparatus.

4,374,682

PROCESS FOR PRODUCING DEEP-DRAWING COLD ROLLED STEEL STRIPS BY SHORT-TIME CONTINUOUS ANNEALING

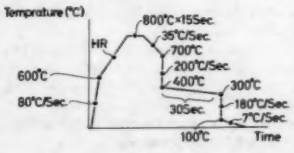
Mitsunobu Abe, Tokyo; Ikushi Yoshida, Yokohama; Munetsugu Matsuo, Kawasaki, and Hiroshi Hayakawa, Kitakyusyu, all of Japan, assignors to Nippon Steel Corporation, Tokyo, Japan

Continuation-in-part of Ser. No. 117,302, Jan. 31, 1980, abandoned. This application Oct. 9, 1980, Ser. No. 195,654

Claims priority, application Japan, Feb. 2, 1979, 54-10493

Int. Cl.³ C21D *9/48*

U.S. Cl. 148—12 C 13 Claims



1. A process for producing a cold rolled steel strip having excellent deep drawing properties by a short-time continuous annealing, which comprises:

hot rolling a low carbon steel slab of steel having a carbon content of from about 0.003 to 0.08% into a steel strip;

cold rolling the hot rolled steel strip;

rapidly heating the cold rolled steel strip to a recrystallization temperature range at a heating rate not less than 40° C./second;

slowly heating the thus rapidly heated steel strip to an annealing temperature at a heating rate ranging from 5° to 30° C./second;

annealing the thus slowly heated steel strip at an annealing

temperature T which is no lower than 700° C. and no higher than the A_3 transformation temperature and for an annealing time t no shorter than [8−0.03 (T−680)] seconds and no longer than [80−0.15 (T−680)] seconds;

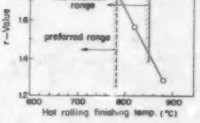
initially slowly cooling the thus annealed steel strip at a cooling rate less than 50° C. second, and then rapidly cooling the strip at a cooling rate not less than 50° C./second from a temperature T_Q ranging from higher than 600° C. to no higher than [T−0.027 (T−680) ($\sqrt{t}$+23.7)]°C. to an over-ageing temperature range; and

subjecting the thus cooled steel strip to an over-ageing treatment at a temperature ranging from 300° to 500° C. for a period of time ranging from 10 seconds to 5 minutes.

4,374,683
PROCESS FOR MANUFACTURING FERRITIC STAINLESS STEEL SHEET HAVING GOOD FORMABILITY, SURFACE APPEARANCE AND CORROSION RESISTANCE

Masao Koike, Nishinomiya; Yutaka Hayashi, Kobe, and Masayoshi Ogaya, Joetsu, all of Japan, assignors to Sumitomo Metal Industries, Ltd., Osaka and Nippon Stainless Steel Co., Ltd., Tokyo, both of, Japan

Filed Feb. 24, 1981, Ser. No. 237,650
Claims priority, application Japan, Feb. 29, 1980, 55-25619
Int. Cl.³ C21D 8/04; C22C 38/20, 38/26
U.S. Cl. 148—12 EA 7 Claims



1. A process for manufacturing a ferritic stainless steel sheet having good formability, surface appearance and corrosion resistance, comprising the steps of: hot rolling a steel composition which consists essentially of:

C: not greater than 0.02%
Si: not greater than 1.0%
Mn: not greater than 1.0%
P: not greater than 0.04%
S: not greater than 0.005%
Cr: 12.00–25.00%
Cu: 0.1–2.0%
Nb: 0.2–2.0%

the balance Fe with incidental impurities with a finishing temperature of 850° C. or less, annealing the resulting hot rolled steel strip at a temperature of 950° C.–1050° C., and then carrying out cold rolling and recrystallization annealing.

4. A process for manufacturing a ferritic stainless steel sheet having good formability, surface appearance and corrosion resistance, comprising the steps of: hot rolling a steel composition which consists essentially of:

C: not greater than 0.02%
Si: 0.01–1.0%
Mn: 0.01–1.0%
P: not greater than 0.04%
S: not greater than 0.005%
N: not greater than 0.02%
Cr: 15–25%
Cu: 0.3–1.0%
Nb: 0.3–0.8%

the balance iron with incidental impurities, with a finishing temperature of 850° C. or less, annealing the resulting hot rolled steel strip at a temperature of 950° C.–1050° C., and then carrying out cold rolling and recrystallization annealing.

4,374,684
HEAT TREATMENT OF CADMIUM MERCURY TELLURIDE

William F. H. Micklethwaite, Rossland, Canada, assignor to Cominco Ltd., Vancouver, Canada

Filed Jan. 19, 1981, Ser. No. 226,291
Claims priority, application Canada, Jul. 18, 1980, 356569
Int. Cl.³ C22F 1/02
U.S. Cl. 148—13.1 7 Claims

1. A method for the heat treatment of homogeneous single crystal cadmium mercury telluride represented by the formula $(Cd_xHg_{1-x})_yTe_{1-y}$ wherein x has values between zero and one and y has values in the range of about 0.49 to 0.51 in an ampoule, comprising the steps of placing in said ampoule slices of said cadmium mercury telluride and a predetermined amount of mercury, evacuating and sealing the ampoule, heating the ampoule to a constant uniform temperature in the range of from about 300 K. to a temperature near but below the solidus temperature of said slices of cadmium mercury telluride, said predetermined amount of mercury being such that only vapor of said predetermined amount of mercury is present in the ampoule at said constant uniform temperature and the vapor pressure of mercury is less than the saturation vapor pressure of mercury at said constant uniform temperature, maintaining said constant uniform temperature for a period in the range of about 1 to 5000 hours, and recovering treated slices.

4,374,685
METHOD OF MAKING A COATED CUTTING TIP

Junichiro Suzuki, and Hiroshi Tanaka, both of Aichi, Japan, assignors to NGK Spark Plug Co., Ltd., Aichi, Japan

Filed Jun. 29, 1981, Ser. No. 278,038
Claims priority, application Japan, Jul. 2, 1980, 55-90348
Int. Cl.³ B22F 3/24, 7/02
U.S. Cl. 148—126.1 4 Claims

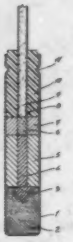
1. A method of making a coated tip for cutting purposes, comprising the steps of heat treating a WC-based ultrahard alloy containing WC, at least one nitride selected from the group consisting of TiN, TaN and NbN, and a bonding metal at a temperature of 800° C. to 1,300° C. ; in an atmosphere containing nitrogen for a sufficient time to cause said nitride in a layer in the vicinity of the surface of said alloy to move to said surface to form a layer of said nitride on said surface and to form an alloy layer of said WC and said bonding metal in which said nitride has been reduced; and coating said surface with a layer of Al_2O_3.

4,374,686

DELAY COMPOSITION FOR DETONATORS

Alan L. Davitt, Brownsburg, and Kenneth A. Yuill, Alfred, both of Canada, assignors to CXA Ltd./CXA Ltee, North York, Canada

Filed Mar. 11, 1981, Ser. No. 242,531
Claims priority, application Canada, Oct. 10, 1980, 362160
Int. Cl.³ C06B *45/02*
U.S. Cl. 149—21 **5 Claims**



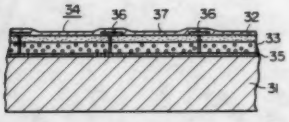
1. A pyrotechnic delay composition adapted for non-electric and electric millisecond delay detonators comprising from 55% to 80% by weight of particulate stannic oxide and from 20% to 45% by weight of particulate silicon.

4,374,687

PROCESS FOR MAKING A BUILT-UP THERMAL INSULATING AND BITUMINOUS WATERPROOFING ASSEMBLY

Kaname Yamamoto, Tokyo, Japan, assignor to Tajima Roofing Co., Ltd., Tokyo, Japan

Division of Ser. No. 152,059, May 20, 1980. This application Nov. 28, 1980, Ser. No. 210,925
Claims priority, application Japan, Jun. 1, 1979, 54-67427
Int. Cl.³ E04D *11/02*; B32B *11/02, 11/10*
U.S. Cl. 156—71 **16 Claims**



1. A process for making a built-up bituminous waterproofing and thermal insulation assembly, comprising the steps of:

(a) placing onto the surface of a substrate a plurality of prefabricated, thermal insulating and bituminous waterproofing boards, each consisting essentially of (i) a thermal insulating layer having an upper surface and a lower surface, said thermal insulating layer being made of thermal insulating material; (ii) a first, flat, fibrous sheet having an upper surface and a lower surface, the lower surface of said first sheet being bonded to the upper surface of said thermal insulating layer in direct, face-to-face, mutually adhering contact; (iii) a modified bitumen layer having a thickness within the range of from 2 to 25 mm and having an upper surface and a lower surface, said modified bitumen layer consisting essentially of a uniform mixture of waterproofing bitumen and 50% to 90% by weight, based on the total weight of the mixture, of pieces of at least one inorganic filler, the lower surface of said modified bitumen layer being bonded to the upper surface of said first sheet in direct, face-to-face, mutually adhering contact; and (iv) a second, flat, fibrous sheet having an upper surface and a lower surface, the lower surface of said second sheet being bonded to the upper surface of said modified bitumen layer in direct, face-to-face, mutually adhering contact, said boards being placed onto the substrate surface adjacent to one another with the edges of said boards being slightly spaced to provide clearances therebetween, said boards forming a layer on said substrate surface with the thermal insulating layer of each of said boards being in close adhering contact with said substrate surface;

(b) then sealing the clearances between said boards with sealing material; and

(c) then forming a continuous, waterproofing layer over the entire upper surface of said boards and said sealing material, said waterproofing layer being integral therewith.

4,374,688

MARBLEIZED CERAMIC ARTICLES

Andrew Quient, 45 Sugar Maple La., P.O. Box 66, Glen Cove, N.Y. 11542

Filed Mar. 17, 1981, Ser. No. 244,635
Int. Cl.³ B44F *9/04*; C04B *33/34*
U.S. Cl. 156—89 **2 Claims**

1. A method of producing ceramic articles with at least one surface having a pattern of sectioned striae, said method including in combination:

a. mixing to incomplete homogeneity a plurality of plastic ceramic masses of contrasting pigmentation to a composite mass,

b. forming the composite mass between a multi-faceted or fluted die which is rotated and a contour-forming template which is stationary,

c. hardening and cutting the hardened composite mass to remove the facets or fluting, and

d. firing to maturation of the cut composite ceramic mass.

4,374,689

METHOD AND APPARATUS FOR FILAMENT WINDING

Dale E. Smith, Windsor, and Warren H. Pinter, East Hartland, both of Conn., assignors to United Technologies Corporation, Hartford, Conn.

Filed Jul. 23, 1981, Ser. No. 286,129
Int. Cl.³ B65H *81/00*
U.S. Cl. 156—169 **4 Claims**

1. A method of filament winding an article comprising the steps of providing a plurality of continuous elongate filaments, forming a band of said filaments by the juxtaposition thereof in mutually spaced, parallel relationship, treating said filament band with an adhesive such that said adhesive is taken up by said filaments, passing said band through a winding eye and winding said filament around a mandrel to form said article,

said method being characterized by the step of drawing said band through a guide fixed with respect to said winding eye subsequently to passing said band therethrough, said guide causing said winding eye to impart a uniform angular displacement to said band for maintenance of band width uniformity irrespective of asymmetrical mandrel shapes.

3. An apparatus for forming an article by winding a plurality of fibers about a form, said apparatus comprising means for forming a plurality of filaments into a band thereof, a winding eye for maintaining proper band orientation with respect to said form, first means for guiding said filamentary band to said winding eye,

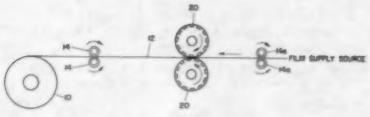
said apparatus being characterized by second means disposed between said winding eye and said form and fixed with respect to said winding eye for guiding said band from said winding eye and angularly restraining said band with respect to said winding eye thereby maintaining a uniform payout angle of said band from said eye as said band is wound about said form.

4,374,690

MULTIDIRECTIONALLY ORIENTED FILMS

Peter J. Canterino, Towaco, and Craig E. Allen, Clark, both of N.J., assignors to Mobil Oil Corporation, New York, N.Y.

Filed Dec. 31, 1980, Ser. No. 221,712
Int. Cl.³ B29D *7/14*
U.S. Cl. 156—229 **3 Claims**



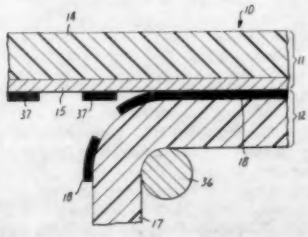
1. A process for multi-direction orienting of a malleable film which comprises pulling a malleable film through the bite between at least one pair of cooperating multi-directional orientation rollers having interengaging surface portions thereby imparting a random orientation to the molecular structure of said film during passage between said rollers.

4,374,691

MATERIAL AND METHOD FOR FORMING PRESSURE TRANSFERABLE GRAPHICS

Jan D. Vanden Bergh, Afton, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed May 9, 1980, Ser. No. 148,452
Int. Cl.³ B41M *3/12, 5/26;* B44C *1/16*
U.S. Cl. 156—234 **9 Claims**



8. A method of forming graphics such as letters, numbers, symbols or pictures and applying the graphics to a substrate comprising the steps of:

providing an accepting portion comprising a receiving web, and a layer of latent adhesive material, which adhesive material is brittle and nontacky at normal room temperature, but is softened and activated when heated to a temperature range slightly above normal room temperature;

providing a transfer portion comprising a donor web, and a frangible, slightly adhesive donor layer releasably adhered to a surface of said donor web;

pressing said layers in face-to-face contact to provide a composite material;

heating the composite material selectively in a graphic pattern above the softening range of said adhesive material so that the layer of adhesive material selectively softens and adheres to the donor layer;

separating the accepting portion and donor web to carry portions of the donor layer to the accepting portion in the configuration of graphics corresponding to the pattern of heating, the donor layer being microgranular in nature to afford separating lines for the portions generally normal to the surface of the donor web, which separating lines closely conform to the periphery of the pattern of heating;

positioning the separated accepting portion with its portions of the donor layer in contact with the substrate;

pressing the positioned portions of the donor layer against the substrate through the accepting web using pressure alone in the absence of heat to tear the latent adhesive material around the portions, separate the adhesive material over the portions from the receiving web and adhere the portions to the substrate; and

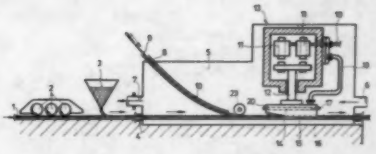
removing the accepting portion.

4,374,692

PROCESS FOR PRODUCING A SURFACE VENEER ON FURNITURE AND THE LIKE

Gabor Sümeghy, Budapest, Hungary, assignor to IV. Ker. Építőipari Szövetkezet, Budapest, Hungary

Filed Mar. 4, 1981, Ser. No. 240,454
Int. Cl.³ B29C *19/00;* B32B *21/08*
U.S. Cl. 156—244.11 **5 Claims**



1. A process for the production of a surface wood veneer on furniture and the like comprising the steps of

(a) extruding a synthetic carrier body in the shape of a thin-walled hollow lath,

(b) forming a band from wood veneer corresponding to the width of a surface of said carrier body to be covered,

(c) softening said veneer band,

(d) applying an adhesive between said veneer band and carrier body,

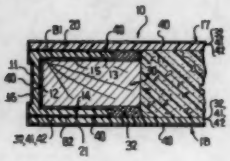
(e) guiding the veneer band onto the surface of said carrier body, and

(f) subjecting said veneer band to the effect of an oscillating pulsator provided with a heat and pressure transmitting stamp in a conditioned space during continuous progress of said veneer band and carrier body and without deformation of said thin-walled, hollow carrier body.

4,374,693
METHOD OF MANUFACTURING ATMOSPHERIC RESISTANT DOORS

William V. Pitt, P.O. Box 7622, Waco, Tex. 76710

Division of Ser. No. 791,426, Apr. 27, 1977, Pat. No. 4,281,493, which is a continuation of Ser. No. 623,094, Oct. 16, 1975, Pat. No. 4,068,431. This application Apr. 30, 1981, Ser. No. 259,355
Int. Cl.³ B32B 31/18; E06B 5/00
U.S. Cl. 156—267 10 Claims

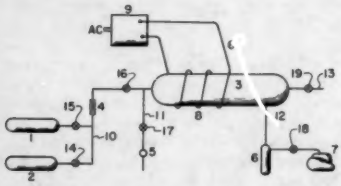


1. A method of making a door comprising the steps of providing a one-piece, integral, continuous, relatively thin walled stile and rail collar of a generally rectangular exterior outline formed of a completely cured admixture of unfoamed polymeric resin and reinforcing material resistant to corrosive and/or high humidity environments of an inwardly opening generally U-shaped cross-sectional configuration formed by a bight and opposite spaced generally parallel faces with interior and exterior surfaces thereof being devoid of exteriorly exposed reinforcing material; providing a pair of plates with each plate being of a generally rectangular outline as defined by terminal edges corresponding in size and shape to the rectangular outline of the collar and being formed of a completely cured admixture of polymeric resin and reinforcing materials resistant to corrosive and/or high humidity environments with an outer surface of each plate being devoid of exteriorly exposed reinforcing material; sandwiching the collar between the plates with all exterior surfaces of the collar and plates facing outwardly, utilizing a polymeric resin bonding material which is resistant to corrosive and/or high humidity environments for bonding the collar and plates together, and creating a generally flush relationship between the terminal edges of the plates and the collar bight exterior surface.

4,374,694
METHOD FOR BONDING ELASTOMERS TO METALS

Donald R. Blenner, and Herman V. Boenig, both of Erie, Pa., assignors to Lord Corporation, Erie, Pa.

Filed Jun. 22, 1981, Ser. No. 276,450
Int. Cl.³ B05D 3/00, 3/04
U.S. Cl. 156—272.6 8 Claims



1. A method for bonding vulcanizable natural and synthetic rubbers to metal substrates comprising

(a) exposing at least one metal element to a glow discharge plasma consisting essentially of a gaseous oxirane reactive monomer;

(b) applying to at least one plasma-exposed surface of said metal element an adhesive composition suitable for bonding natural and synthetic rubber to metal;

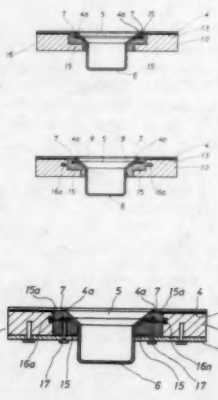
(c) contacting said adhesively-coated metal element with a vulcanizable rubber composition; and

(d) subjecting the resultant assembly to conditions sufficient to vulcanize said rubber and cure said adhesive.

4,374,695
TOPS FITTED WITH BASINS AND PROCESS FOR THEIR PRODUCTION

Eiji Ikeda; Tomohiro Adachi, both of Nagoya; Yoshihiro Ito, Seto; Ryozo Yamada, Aichi; Akio Taga, Inazawa, and Shigeo Takashima, Aichi, all of Japan, assignors to Aica Kogyo Co., Ltd., Nagoya, Japan

PCT No. PCT/JP80/00063, § 371 Date Dec. 5, 1980, § 102(e) Date Dec. 5, 1980, PCT Pub. No. WO80/02170, PCT Pub. Date Oct. 16, 1980
PCT Filed Apr. 7, 1980, Ser. No. 224,531
Claims priority, application Japan, Apr. 6, 1979, 54-41221; Apr. 6, 1979, 54-41222; Apr. 6, 1979, 54-41223; Apr. 6, 1979, 54-41224; Apr. 6, 1979, 54-41225; Apr. 6, 1979, 54-41226
Int. Cl.³ E03C 1/33; B32B 31/00
U.S. Cl. 156—293 8 Claims



5. A process for producing a fixture top fitted with a basin, said process comprising the steps of:

applying and curing a synthetic resin on a portion of the bottom surface of a decorative board so as to form a reinforcing resin layer;

positioning a flange of said basin on said reinforcing resin layer and spaced from said decorative board;

bonding a core of a wood derived material to another portion of said bottom surface of said decorative board, said core including a cavity at said layer and said basin;

filling the portion of said cavity between said core and said basin with additional synthetic resin; and

curing said additional resin,

whereby said basin is entirely embedded in said resin and is integrated with said core.

4,374,696

METHOD OF HEAT-SEALING SUBSTRATES

Helmut Schmidt, Höchberg; Gerhard Tünker, and Horst Scholze, both of Würzburg, all of Fed. Rep. of Germany, assignors to Fraunhofer-Gesellschaft, Munich, Fed. Rep. of Germany

Filed Mar. 20, 1981, Ser. No. 246,111

Claims priority, application Fed. Rep. of Germany, Mar. 26, 1980, 3011761

Int. Cl.³ C09J 3/00; B32B 9/00, 17/06

U.S. Cl. 156—329 39 Claims

1. A method for heat-sealing a first glass substrate to a second substrate, comprising the steps of:

applying to said glass substrate or to said second substrate, without previously coating said glass substrate with an adhesion promoter, a heat sealing adhesive consisting essentially of a thermoplastic heteropolycondensate prepared by hydrolysis of and polycondensation of:

(a) 20 to 95% by weight of at least one organosilane of the general formula (I):

$$R_mSiX_{4-m} \quad (I),$$

wherein R is alkyl, alkenyl, aryl, alkylaryl, or arylalkyl; X is hydrogen, halogen, hydroxyl, alkoxy, acyloxy, or a group —NR′₂ wherein R′ is hydrogen and/or alkyl; and m is an integer of 1, 2 or 3; with at least one of the following components (b), (c) and (d), the total concentration of components (b), (c) and (d) being at least 5% by weight:

(b) 0 to 40% by weight of one or more silicon-functional silanes of the general formula (II):

$$SiX_4 \quad (II)$$

wherein X is as defined above, with the proviso that not all of substituents X are hydrogen;

(c) 0 to 40% by weight of one or more substantially involatile oxides soluble in the reaction medium, or one or more compounds capable of forming such substantially involatile oxides, of an element selected from Groups Ia to Va or IVb and Vb of the Periodic Table; and

(d) 0 to 20% by weight of one or more organofunctional silanes of the general formula (III):

$$R_n(R''Y)_pSiX_{(4-n-p)} \quad (III),$$

wherein R and X are as defined above; R″ is straight chain or branched alkylene optionally interrupted by oxygen or sulfur atoms or —NH—groups, phenylene, alkylphenylene, or alkylenephenylene; Y is halogen, unsubstituted or substituted amino, unsubstituted or substituted anilino, aldehyde, keto, carboxyl, hydroxyl, mercapto, cyano, hydroxyphenyl, carboxylic acid alkyl ester, sulfonic acid, phosphoric acid, acryloxy, methacryloxy, glycidyloxy, epoxy, or vinyl; n is an integer of 0, 1 or 2; and p is an integer of 1, 2 or 3, the sum of n+p being an integer of 1, 2 or 3;

in the presence of at least the stoichiometric amount of water required for hydrolysis, and optionally in the presence of a condensation catalyst and/or solvent, wherein in the case of starting components (a) and (d), oligomers of these silanes which are soluble in the reaction medium may also be used; and heat sealing said glass substrate to said second substrate.

4,374,697

CONTAINER, AND METHOD AND DEVICE FOR MANUFACTURING THE SAME

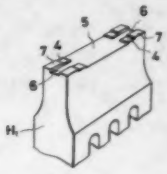
Kiyoshi Tsuzuki; Sigeto Tanaka, both of Sagamihara, and Yoshiaki Take, Fujisawa, all of Japan, assignors to Toppan Printing Co., Ltd., Tokyo, Japan

Filed Dec. 17, 1980, Ser. No. 217,217

Claims priority, application Japan, Dec. 26, 1979, 54-169600; Dec. 26, 1979, 54-169601; Dec. 26, 1979, 54-169602; Dec. 26, 1979, 54-180535

Int. Cl.³ B29C 27/08

U.S. Cl. 156—580.2 6 Claims



1. A device for forming the body and bottom of a container of the kind wherein there is an axial seam formed by adhesively-joined overlapping portions of the side and a bottom formed by an upwardly-folded lower end portion of the bottom adhesively enfolded with a downwardly-folded portion of the lower end of the side, said device comprising an ultrasonic side seaming device for welding the side seam, said side seaming device embodying an elongate, ultrasonic horn and means therein defining a planar contact surface containing a stepped-down recess commencing several millimeters from one end for engagement with the side seam and a bottom seaming device comprising an outer mold containing a mold cavity for receiving the bottom, said outer mold containing a centrally-located circular hole, a shaft, a knurling tool supported by the shaft within the mold cavity for rotation about its axis and movement circumferentially within the hole and means circumferentially of the knurling tool defining a circumferential wall and an annular groove of such radial dimensions as to have rolling tangential engagement with the enfolded portion of the body and bottom when moved circumferentially within the hole to cause the enfolded portion to become adhered.

4,374,698

METHOD OF MANUFACTURING A SEMICONDUCTOR DEVICE

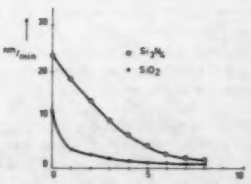
Jozef A. M. Sanders, Sunnyvale, Calif.; Franciscus H. M. Sanders; Hendrikus Kalter, both of Eindhoven, Netherlands, and Everhardus P. G. T. van de Ven, Sunnyvale, Calif., assignors to U.S. Philips Corporation, New York, N.Y.

Filed Jul. 9, 1981, Ser. No. 281,757

Claims priority, application Netherlands, Jul. 11, 1980, 8004005

Int. Cl.³ B44C 1/22; C03C 15/00, 25/06

U.S. Cl. 156—643 11 Claims



1. A method of manufacturing a semiconductor device com-

prising etching a layer of silicon nitride which is present on a substrate by bringing the layer into contact with constituents of a plasma formed in a gas mixture which contains a fluoride compound and an oxygen compound, characterized in that from 1 to 15% by volume of a gaseous compound which contains a halogen other than fluoride is added to the gas mixture.

4,374,699

METHOD OF MANUFACTURING A SEMICONDUCTOR DEVICE

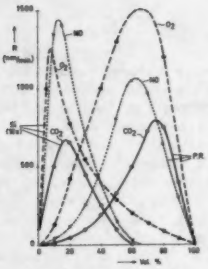
Jozef A. M. Sanders, Sunnyvale, Calif., and Franciscus H. M. Sanders, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Jul. 9, 1981, Ser. No. 281,759

Claims priority, application Netherlands, Jul. 11, 1980, 8004008

Int. Cl.³ B44C *1/22;* **C03C** *15/00, 25/06*

U.S. Cl. 156—643 **4 Claims**



1. In a method of manufacturing a semiconductor device having an organic lacquer layer locally present on a substrate comprising plasma etching said layer with a gas mixture containing a halogen compound and an oxygen compound representing more than 25% by volume of said gas mixture, the improvement comprising forming said oxygen compound from the group NO and CO_2.

4,374,700

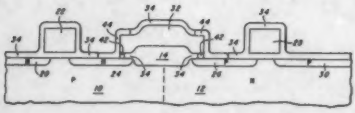
METHOD OF MANUFACTURING SILICIDE CONTACTS FOR CMOS DEVICES

David B. Scott, Plano; Roderick D. Davies, Richardson, and Yee-Chaung See, Plano, all of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed May 29, 1981, Ser. No. 268,201

Int. Cl.³ H01L *21/308, 21/24, 21/283*

U.S. Cl. 156—656 **10 Claims**



9. A process for forming contacts between gate-level polysilicon and a silicon substrate, comprising the steps of:

providing a silicon substrate;

providing an insulator layer on said substrate, said insulator layer comprising gate insulator areas, wherein the thickness of said insulator layer is less than 100 nm;

providing polysilicon on selected portions of said insulator layer;

etching regions of said gate insulator areas, adjacent to respective portions of said polysilicon, where said contacts are to be formed, said etching step also partially undercutting said portions of said polysilicon where said contacts are to be formed by eroding said insulator layer from beneath the perimeter of said polysilicon;

conformally depositing undoped polysilicon overall;

anisotropically etching said undoped polysilicon, so as to remove said undoped polysilicon except from said undercuts in said gate insulator layer; and

providing metal silicide on exposed areas of said substrate, said gate-level polysilicon, and said undoped polysilicon in said undercuts in said gate insulator areas, whereby silicide contacts are formed between said gate-level polysilicon and said respective exposed regions of said substrate.

10. The process of claim **9**, wherein said step of providing silicide comprises:

depositing a metal overall;

applying heat, so that said metal reacts with said regions exposed by said first-mentioned etching step; and

etching away all unreacted portions of said metal.

4,374,701

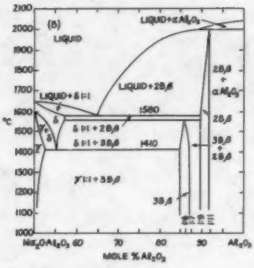
CHEMICALLY POLISHED CERAMIC BODY

Raj N. Singh, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Aug. 3, 1981, Ser. No. 289,578

Int. Cl.³ B44C *1/22;* **C03C** *15/00, 25/06*

U.S. Cl. 156—667 **12 Claims**



1. A process for producing a polished ceramic body which comprises providing a polycrystalline ceramic body, said ceramic body ranging in composition from an alkali metal beta-alumina phase to an alkali metal beta"-alumina phase including all combinations of said alkali metal beta-alumina phase and said alkali metal beta"-alumina phase, said alkali metal being selected from the group consisting of sodium, potassium. lithium, mixtures thereof, and alloys thereof, and polishing said ceramic body by contacting it with phosphoric acid at a temperature ranging from about 250° C. to about 350° C. to produce a ceramic body with a polished surface, said phosphoric acid having a concentration of P_2O_5 which polishes said ceramic body, said polishing having no significant deleterious effect on said ceramic body.

4,374,702

MICROFIBRILLATED CELLULOSE

Albin F. Turbak, Convent Station; Fred W. Snyder, Wharton, both of N.J., and Karen R. Sandberg, Shelton, Wash., assignors to International Telephone and Telegraph Corporation, New York, N.Y.

Continuation of Ser. No. 107,446, Dec. 26, 1979, abandoned. This application Oct. 22, 1981, Ser. No. 313,726

Int. Cl.³ D21D *1/20*

U.S. Cl. 162—100 **11 Claims**

1. A process for preparing microfibrillated cellulose comprising passing a liquid suspension of fibrous cellulose through a high pressure homogenizer having a small diameter orifice in

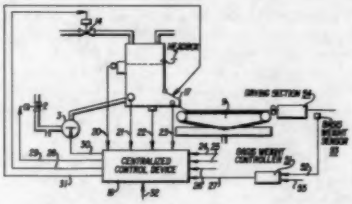
which the suspension is subjected to a pressure drop of at least 3000 psi and a high velocity shearing action followed by a high velocity decelerating impact against a solid surface, repeating the passage of said suspension through the orifice until said cellulose suspension becomes a substantially stable suspension, said process converting said cellulose into microfibrillated cellulose without substantial chemical change of the cellulose starting material.

4,374,703

CONTROL SYSTEM FOR PAPERMAKING MACHINE HEADBOX

Louis Lebeau, and Guy Bornard, both of Saint-Ismier, France, assignors to Centre Technique de l'Industrie des Papiers, Cartons et Celluloses, Grenoble, France

Continuation of Ser. No. 52,216, Jun. 26, 1979, abandoned. This application Jan. 8, 1981, Ser. No. 223,564
Claims priority, application France, Jun. 30, 1978, 78 20428
Int. Cl.³ D21F 1/02, 1/06
U.S. Cl. 162—253 12 Claims



1. An apparatus for controlling a paper machine headbox comprising:

four sensors for directly measuring respective parameters of a paper making process and the disturbance to said parameters caused by operation of said machine, said sensors respectively directly measuring the pulp concentration in the headbox, the pulp level in the headbox, the total pressure in the headbox and a slice opening of the headbox;

at least three actuators having inputs for controlling respective operative devices which affect said measured parameters of the process;

a multivariable control system for receiving output signals from said four sensors and set point values for said measured parameters and supplying control signals to said at least three actuators, said control system comprising:

first means providing a model of said process, said first means receiving setting signals which are applied to said at least three actuators and supplying first parameter output signals representing the interrelationship of said measured parameters with respect to actuator settings as determined by said process model;

second means in parallel with said first means and providing a measurable disturbance model relating to said process, said second means receiving measured disturbance signals and supplying first parameter disturbance signals representing the interrelationship of parameter disturbances with respect to measured disturbances as determined by said disturbance model;

third means providing a regulation reference model relating to said process, said third means being responsive to output signals from said sensors and said first and second means and providing output signals for eliminating said measured disturbances as determined by said regulation reference model; and,

fourth means providing a tracking reference model relating to said process, said fourth means receiving set point values for said measured parameters and providing therefrom output signals representing desired values of said measured parameters of said process as determined by said tracking reference model;

said control system providing individual control signals to said actuators in response to said sensor signals and the output signals of said first, second, third and fourth means for controlling at least one parameter of said process in direct response to a variation in said parameter from a disturbance, set point change, or both, by altering the inputs to said actuators, while minimizing the effects on the remainings parameters of said process.

4,374,704

APPARATUS FOR PYROLYSIS OF HYDROCARBON BEARING MATERIALS

William P. Young, 419 S. Edgewood Ave., La Grange, Ill. 60525

Division of Ser. No. 936,367, Aug. 24, 1978, abandoned, which is a continuation of Ser. No. 822,444, Aug. 8, 1977, abandoned. This application Nov. 4, 1980, Ser. No. 203,863
Int. Cl.³ C10B 1/08, 1/10, 43/04
U.S. Cl. 202—117 7 Claims

1. Apparatus for the pyrolysis of hydrocarbon bearing materials comprising: a rotary kiln the axis of which is inclined with respect to the horizontal, means for introducing said material into an upper portion of said kiln, means for rotating said kiln about its axis to cause said material to move within said kiln from its point of introduction toward a lower portion of said kiln, means for heating said material through the walls of said kiln as said kiln rotates and as said material moves within the kiln to a temperature at which a portion of said material is volatile, the lower portion of said kiln having an opening therein through which material may pass out of said kiln, a stationary supporting structure within said kiln, a scraping shoe, and a lever pivotally attached to said structure, said lever being at its one end pivotally connected to said shoe and weighted at its other end, the weight of said weighted end urging said shoe against the wall of said kiln.

4,374,705

DISTILLATION FOR ALCOHOL

Kiyoshi Sawai, Chibashi, and Takao Kawase, Ichiharashi, both of Japan, assignors to Chisso Engineering Co. Ltd., Tokyo, Japan

Filed Feb. 6, 1981, Ser. No. 232,307
Claims priority, application Japan, Feb. 8, 1980, 55-14602
Int. Cl.³ B01D 1/28
U.S. Cl. 203—19 4 Claims

1. A process for the distillation of alcohol from a glue-like raw alcohol containing solution which comprises:

providing a distillation equipment comprising:

first concentrating column means to generate alcohol vapor from glue-like raw alcohol containing liquid;

second concentrating column means to concentrate alcohol vapor generated in the first concentrating column means;

compressor means to compress the alcohol vapor generated in the second concentrating column means to a vapor having a temperature of about 118° C. and a pressure of 3–5 atm/G.;

water evaporator means to generate steam having a temperature of about 106° C. and a pressure of 0.3 atm/G.

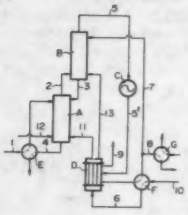
by heat exchanging of water with the alcohol vapor compressed in the compressor means;

said first concentrating column means having a raw alcohol containing liquid introducing pipe, a distillation residue discharging pipe and a steam inlet pipe;

an alcohol vapor conducting pipe and a refluxing liquid conducting pipe each being operatively connected between said first concentrating column means and said second concentrating column means;

an alcohol vapor conducting pipe operatively connected between the second concentrating column means and the compressor means;

a compressed alcohol vapor conducting pipe operatively connected between the compressor means and the water evaporator means;



a steam blowing pipe operatively connected between the water evaporator means and the first concentrating column means;

a steam blowing pipe and an alcohol supplying reflux pipe each operatively connected between the evaporator means and the second concentrating column means;

an exhaust gas pipe and a water supplying pipe each operatively connected to the water evaporator means; and

an alcohol removing branched pipe operatively connected to the alcohol supplying pipe;

feeding the glue-like raw alcohol containing solution to said first concentrating column means; and

recovering 94.5 weight % of alcohol through said alcohol removing branched pipe.

4,374,706

PROCESS FOR THE PURIFICATION OF PHOSPHORUS PENTASULPHIDE BY DISTILLATION UNDER VACUUM

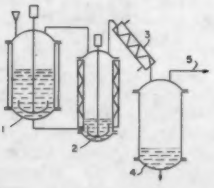
Pietro Molla, Milan, Italy, assignor to Saffa S.p.A., Milan, Italy

Continuation-in-part of Ser. No. 902,743, May 3, 1978, abandoned. This application Mar. 2, 1981, Ser. No. 238,159

Claims priority, application Italy, May 20, 1977, 23796 A/77

Int. Cl.³ B01D *3/10*

U.S. Cl. 203—91 **3 Claims**



1. Process for the purification of phosphorous pentasulfide by means of distillation in which the phosphorous pentasulfide is liquified by heating at a temperature below its boiling point temperature, the liquified phosphorous pentasulfide is evaporated under reduced pressure at a temperature between 365° and 380° C., and the vapors of phosphorous pentasulfide are condensed by cooling, characterized in that the liquification, evaporation and condensation of the phosphorous pentasulfide are carried out at a residual pressure of about 6 mmHg, and the phosphorous pentasulfide both prior to and after the evaporation is heated and cooled respectively at a temperature between 315° and 350° C.

4,374,707

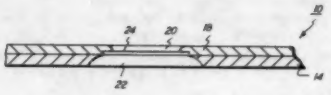
ORIFICE PLATE FOR INK JET PRINTING MACHINES

Joel M. Pollack, Rochester, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Mar. 19, 1981, Ser. No. 245,422

Int. Cl.³ C25D *1/08, 1/20*

U.S. Cl. 204—11 **15 Claims**



1. A method of producing an orifice plate for use in an ink jet printing system, including the steps of:

providing a thin substrate attached to a thick support;

forming a pattern of electrically insulated areas on the surface of the substrate opposed to the support;

electroplating the uninsulated areas of the surface of the substrate opposed to the support;

separating the substrate from the support;

forming a pattern of chemically resistant areas on the nonelectroplated surface of the substrate to protect selected areas thereof; and

dissolving the non-protected areas of the substrate to produce an orifice plate.

4,374,708

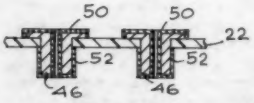
FINE LINE CIRCUITRY PROBES AND METHOD OF MANUFACTURE

William P. Dugan, Pomona, Calif., assignor to General Dynamics, Pomona Division, Pomona, Calif.

Division of Ser. No. 125,814, Feb. 28, 1980. This application Jul. 2, 1981, Ser. No. 279,888

Int. Cl.³ C25D *1/08, 5/02, 5/54*

U.S. Cl. 204—11 **3 Claims**



1. A method of producing a microcircuit probe containing testing board comprising;

laminating and adhering together a board and a dielectric layer with a mandrel sandwiched between them, said mandrel being a thickness equivalent to the desired probe height;

providing a plurality of holes through said board, mandrel and layer for locating said probes;

cladding said board, said layer and said holes with a conductive metal;

electroplating the structure with the metal which is to constitute said probes to form thick-walled cylinders of said metal in said holes;

removing plated metal from the exterior surfaces of the structure while leaving the metal in said holes;

masking the surface of said board in a selected circuit pattern;

etching the unmasked portions of said board to remove exposed cladding;

removing said mask and exposing the remaining cladding;
removing all material, including the dielectric layer, along the surface of the mandrel remote from the board;
removing said mandrel without disturbing the probe metal or the board; and
providing a solder surface on the probes produced thereby.

4,374,709

PROCESS FOR PLATING POLYMERIC SUBSTRATES

Daniel J. Combs, Sterling Heights, Mich., assignor to Occidental Chemical Corporation, Warren, Mich.

Filed May 1, 1980, Ser. No. 145,534
Int. Cl.³ C25D 5/56
U.S. Cl. 204—30 20 Claims

1. A process for pretreating a substantially non-conductive substrate to render it receptive to subsequent electroplating operations which comprises the steps of contacting a substrate with a dilute aqueous conditioning solution containing controlled effective amounts of copper ions, acid and a bath soluble polyether compound for a period of time to effect an immersion deposit of copper on the substate and reduce the resistivity thereof, and thereafter electrolytically depositing on the conditioned substrate a copper strike employing an aqueous acidic electrolyte containing copper ions, acid and a bath soluble polyether compound present in amounts effective to deposit a uniform, adherent and conductive copper strike on the substrate.

4,374,710

ELECTROLYTIC GRAINING OF ALUMINUM WITH NITRIC AND OXALIC ACIDS

John E. Walls, Annandale, N.J., assignor to American Hoechst Corporation, Somerville, N.J.

Filed Mar. 18, 1982, Ser. No. 359,338
Int. Cl.³ C25F 3/04
U.S. Cl. 204—33 13 Claims

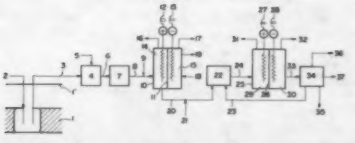
1. A method of treating the surface of a sheet of aluminum or the alloys thereof which comprises electrolytically graining said sheet under electrolyzing conditions in an aqueous solution of nitric acid and oxalic acid in a sufficient concentration and for a sufficient length of time to provide a finely grained surface topography to said sheet.

4,374,711

PROCESS FOR THE ELECTROLYSIS OF AN AQUEOUS SODIUM CHLORIDE SOLUTION COMPRISING, IN COMBINATION, A DIAPHRAGM PROCESS AND A CATION EXCHANGE MEMBRANE PROCESS

Shinsaku Ogawa, Nobeoka, Japan, assignor to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

Filed Jan. 30, 1981, Ser. No. 229,842
Claims priority, application Japan, Jan. 30, 1980, 55-8715
Int. Cl.³ C25B 1/34
U.S. Cl. 204—98 6 Claims



1. A process for the electrolysis of an aqueous sodium chloride solution comprising, in combination, a diaphragm process in which sodium chloride contained in the catholyte is crystallization-separated by means of a crystallizer used in the diaphragm process and a cation exchange membrane process in which a weak saline solution is taken out of an anode chamber of an electrolytic cell for the cation exchange membrane process, characterized in that the sodium chloride obtained from said crystallizer is dissolved in the weak saline solution taken out of said anode chamber and the resulting saline solution is supplied into an anode chamber of an electrolytic cell for the diaphragm process.

4,374,712

CATHODE FOR CHLOR-ALKALI CELLS

Thomas J. Gray, Guilford, Conn., assignor to Olin Corporation, New Haven, Conn.

Continuation-in-part of Ser. No. 80,745, Oct. 1, 1979, which is a continuation-in-part of Ser. No. 25,153, Mar. 29, 1979, Pat. No. 4,240,895. This application Sep. 14, 1981, Ser. No. 301,681
Int. Cl.³ C25B 1/34, 11/06
U.S. Cl. 204—98 16 Claims

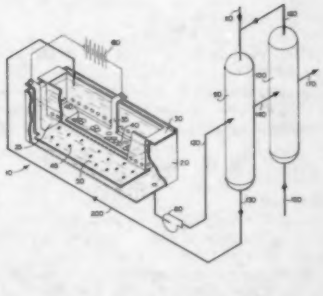
1. In an electrolytic cell useful for the electrolysis of brine to produce chlorine and an alkali metal hydroxide, said cell being comprised of an anode, a cathode, and a cationic exchange separator positioned between said anode and cathode, characterized by the improvement which comprises employing as said cathode a conductive metal core having a Raney metal surface predominantly derived from an integral Beta structured $(Ni_xMo_yTi_z)Al_3$ quaternary intermetallic crystalline precursory outer surface which adheres to said metal core, where x is less than 94, y is within the range from about 5 to about 20 and z is within the range from 1 to about 5 weight percent of the Ni-Mo-Ti molecular portion.

4,374,713

PROCESS FOR SEPARATING TUNGSTEN FROM COINAGE METALS

Samuel Natansohn, Sharon, and Gary Czupryna, Salem, both of Mass., assignors to GTE Laboratories Incorporated, Waltham, Mass.

Filed Jun. 1, 1981, Ser. No. 269,191
Int. Cl.³ C25C 1/08, 1/20
U.S. Cl. 204—109 8 Claims



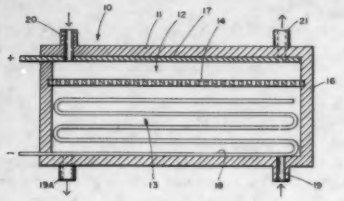
1. A process for separately recovering tungsten and a coinage metal from alloys or mixtures thereof comprising electrowinning said coinage metal from an aqueous nitrate electrolyte solution contained in an electrowinning cell having an anode, comprising said alloy or mixture of tungsten and a coinage metal, snd a cathode; wherein the electrolyte solution is maintained essentially free of dissolved tungsten by contacting, in a chamber separate from said electrowinning cell, said electrolyte solution with an organic extractant solution comprising an inert solvent and a quaternary alkylammonium salt or a quaternary alkylphosphonium salt to selectively remove a portion of the tungsten from said electrolyte solution and to deposit said coinage metal at the cathode of said electrowinning cell in a form substantially free of tungsten contamination; and separately recovering said selectively removed portion of tungsten from said organic extractant solution.

4,374,714

PROCESS FOR THE PRESERVATION OF COLOR AND FLAVOR IN LIQUID CONTAINING COMESTIBLES

Ihab M. Hekal, Stamford, Conn., assignor to Continental Packaging Company, Inc., Stamford, Conn.

Filed Mar. 15, 1982, Ser. No. 357,969
Int. Cl.³ C25B 3/04; A23L 1/00, 3/32
U.S. Cl. 204—131 11 Claims



1. A method of treating liquid comestibles having oxygen dissolved or occluded therein to reduce the oxygen content thereof which comprises introducing the liquid containing comestible and an electrolyte solution separately through separate compartments of an electrolytic cell having a first compartment containing an anode and a second compartment containing a cathode, the compartments being separated by a cation permeable membrane, the comestible being introduced into the cathode compartment and the electrolyte solution being introduced into the anode compartment, the electrolyte being a highly dissociatable, non-oxidizable, inorganic acid, applying an electric current between the anode and cathode which flows at a density within the range of about 0.002 to about 10 amperes per square inch, maintaining the comestible in the cathode compartment for a time sufficient to deoxidize and effect removal of the oxygen therefrom but insufficient to effect any substantial chemical change in the comestible and then discharging the deoxidized comestible from the cathode compartment.

4,374,715

METHOD FOR THE PREPARATION OF POLY (CARBONOYL FLUORIDE) OLIGOMERS

Keith B. Baucom, Gainesville, and Burrell N. Hamon, Starke, both of Fla., assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Jun. 17, 1981, Ser. No. 274,697
Int. Cl.³ B01J 19/12
U.S. Cl. 204—158 R 2 Claims

1. In a method for preparing poly (carbonyl fluoride) oligomers comprising the steps of introducing a reaction mixture of F-3-methylbutene-1 and oxygen into an evacuated reaction vessel; subjecting said reaction mixture to a source of ultraviolet radiation for a period of time sufficent to effect a photolytic reaction between the components of said mixture; and separating the resulting reaction products; the improvement which comprises the addition of a minor amount of bis(trifluoromethyl)trioxide to said reaction mixture as a reaction initiator.

4,374,716

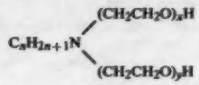
NOVEL AMORPHOUS AROMATIC POLYESTER MODIFIED WITH AMINE AND UV CURABLE COMPOSITION CONTAINING THE SAME

James G. Pacifici, Batesville, Ark.; Gordon C. Newland, and Howard G. Moore, both of Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.

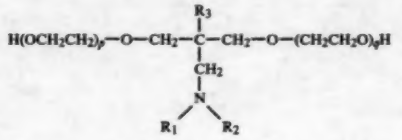
Filed Aug. 6, 1981, Ser. No. 290,460
Int. Cl.³ C08G 18/00, 63/00, 69/00
U.S. Cl. 204—159.19 11 Claims

1. A radiation-curable composition comprising

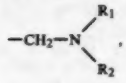
A. about 4.5 to 49.5 percent by weight of a linear amorphous aromatic polyester derived from (i) terephthalic acid, (ii) 1,2-propanediol or mixtures of 1,2-propanediol with up to 20 mole percent of ethylene glycol, based upon the total of 1,2-propanediol and ethylene glycol, and (iii) about 5 to 30 mole percent, based upon the total of (i), (ii), and (iii), of a glycol which contains a tertiary amine group, said glycol having the general formula



where n is an integer within the range of 1 to 20 and each of x and y is independently an integer within the range of 1 to 30 with the sum of x+y being less than or equal to 60, or the general formula



where each of p and q is independently 0 or a positive integer not greater than 10, and where R_1 and R_2 are lower alkyl groups and can be the same or different and R_3 is a lower alkyl group or a group of the formula



said polyester having an inherent viscosity of about 0.05 to 0.5 dl/g when measured in 60:40 phenol:tetrachloroethane at a concentration of 0.5 g/100 ml at 25° C.

B. about 50 to 95 percent by weight of a photopolymerizable or photocrosslinkable ethylenically unsaturated compound; and

C. about 0.5 to 25 percent by weight of a photoinitiator selected from the group consisting of benzil, lower alkyl substituted benzil, benzoin ethers, haloalkyl ketones, aromatic ketones, lower alkyl substituted aromatic ketones, aromatic ketones in combination with amines, and mixtures thereof.

4,374,717

PLASMA POLYMERIZED INTERFACIAL COATINGS FOR IMPROVED ADHESION OF SPUTTERED BRIGHT METAL ON PLASTIC

Edmund Drauglis, Columbus; Roy F. Wielonski, Worthington, and Francis A. Sliemers, Columbus, all of Ohio, assignors to General Motors Corporation, Detroit, Mich.

Filed Nov. 5, 1981, Ser. No. 318,634
Int. Cl.³ C23C 15/00; B32B 15/08; B05D 1/36
U.S. Cl. 204—192 C 2 Claims

1. A method of improving adhesion between layers of a thermoplastic urethane article sputtered with a bright metal coating comprised of chromium metal and having a clear protective urethane overcoating comprising:

providing a clean sputtering surface on a said thermoplastic urethane article;

exposing said surface to a radio frequency induced plasma of acetonitrile monomer such that a coherent thin coating layer of polymerized acetonitrile is formed thereon;

sputtering said article with a bright metal coating layer containing chromium metal;

exposing said metal coating layer to a second radio frequency induced plasma of acetonitrile to form a second coherent thin coating layer of polymerized acetonitrile thereon; and

covering said second polymerized acetonitrile layer with a clear compatible, protective layer comprised of polymeric urethane.

4,374,718

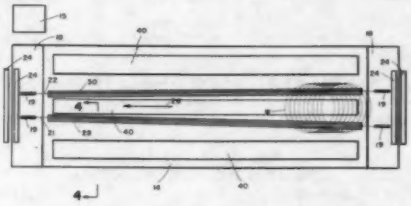
ELECTROLYTIC CELL

John H. Miles, Ravenna, Ohio, assignor to Wean United, Inc.

Filed May 8, 1981, Ser. No. 261,997

Int. Cl.³ C25D *17/00*

U.S. Cl. 204—202 **9 Claims**



1. An electrolytic cell for processing in a generally horizontal path material such as wire, rod or bar stock while passing through the electrolytic cell comprising:

a receptacle,

a conveying means for receiving and supporting said material while passing through said receptacle,

said conveying means including a continuous electrically charged chain means,

said chain means being made up of members that support the said material during its travel through said receptacle.

4,374,719

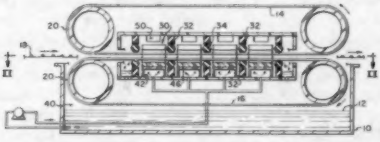
SYSTEM FOR ELECTROLYTIC CLEANING OF METAL WIRE IN LOOP FORM

Frank W. Bakewell, Washington Township, Westmoreland County, and Charles D. Stricker, Monroeville Borough, both of Pa., assignors to United States Steel Corporation, Pittsburgh, Pa.

Filed Mar. 19, 1982, Ser. No. 359,729

Int. Cl.³ C25D *17/00*

U.S. Cl. 204—202 **5 Claims**



1. A system for electrolytically cleaning metal wire, said system comprising:

a container for holding an electrolyte, means for conveying the wire through the electrolyte on a generally horizontal passline,

the wire being arranged in overlapped, non-concentric loops of about the same diameter lying flat in the passline direction,

a plurality of elongated electrodes mounted in the container so as to extend lengthwise in generally transverse relation with respect to the passline, said electrodes being arranged in tandem in the passline direction and being adapted to be connected to a supply of electric current such that adjacent ones thereof are of opposite polarity, and

a plurality of non-conductive barriers for electrically separating each adjacent pair of said electrodes,

said electrodes including a planar first portion extending lengthwise fully across said loops on one side thereof and a pair of wrap-around second portions joined to each of the opposed narrow ends of the first portion, said wrap-around second portions each including at least a generally vertical leg extending along the outer edges of the wire loops, said second portions each providing an additional electrode area, within the outer one-sixth (1/6) of the loops as measured in a transverse direction normal to the passline, of from 5 to 35 percent of the area of said first electrode portion,

the first and second electrode portions providing an electrode-to-wire spacing within the range of about 0.5 to about 2.0 inches,

whereby, the wire loops are more effectively cleaned at the outer edges thereof.

4,374,720

SYNTHESIS OF WATER SOLUBLE CROSS-LINKERS AND THEIR USE IN THE MANUFACTURE OF ANIONIC POLYMERS

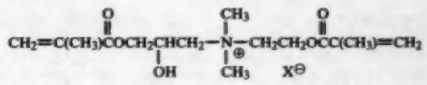
Russell J. MacDonald, Woburn, Mass., assignor to Ionics, Incorporated, Watertown, Mass.

Division of Ser. No. 217,494, Dec. 13, 1980, Pat. No. 4,310,631, which is a division of Ser. No. 84,337, Oct. 12, 1979, Pat. No. 4,275,227. This application Aug. 21, 1981, Ser. No. 295,161

Int. Cl.³ B01J *41/04*; C07C *67/26*; C08F *18/22*

U.S. Cl. 204—252 **7 Claims**

1. A homopolymer of a water soluble, ionic, cross-linking bifunctional monomer of the formula:



where X represents a univalent anion of an acid.

3. The method of preparing a water soluble compound of the formula of claim 1 comprising reacting a liquid mixture of glycidyl methacrylate, dimethylaminoethyl methacrylate and a water solution of an acid.

4,374,721

ROLL HAVING LOW VOLUME RESISTIVITY FOR ELECTROPLATING

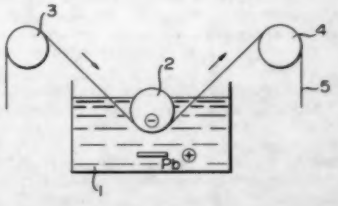
Yoshio Hara, Zama, and Yoshiaki Hashimoto, Kisarazu, both of Japan, assignors to Mitsubishi Steel Mfg. Co., Ltd. and Nippon Steel Corporation, both of, Japan

Filed Sep. 25, 1981, Ser. No. 305,398

Claims priority, application Japan, Sep. 29, 1980, 55-134399

Int. Cl.³ C25D *17/10*

U.S. Cl. 204—293 **2 Claims**



1. A roll for electroplating having low volume resistivity consisting essentially of, in weight %, below 0.1%C, below

1.5%Si, below 1.5%Mn, 14% to 21%Cr, 13% to 20%Mo, below 6%Fe, and the balance substantially Ni.

4,374,722
CATHODIC SPUTTERING TARGET INCLUDING MEANS FOR DETECTING TARGET PIERCING

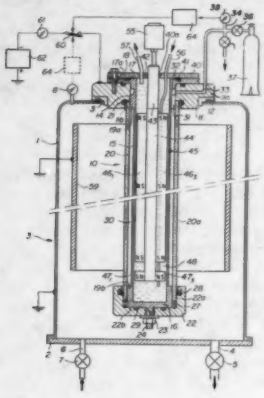
Bogdan Zega, Geneva, Switzerland, assignor to Battelle Development Corporation, Columbus, Ohio

Filed Aug. 6, 1981, Ser. No. 290,425

Claims priority, application European Pat. Off., Aug. 8, 1980, 80200752.6

Int. Cl.³ C23C *15/00*

U.S. Cl. 204—298 **10 Claims**



1. An improved sputtering cathode for a high rate sputtering apparatus for substrate coating, adapted to be located inside an evacuable sealed enclosure, the cathode having means for target cooling during sputtering and means for enhancing the sputtering rate, the target having a sputtering face of a material to be sputtered and a back face opposed to the sputtering face, wherein the improvement comprises:

a first, thin gas tight chamber formed by the back face of the target and an intermediate support, adapted to have a gas of high thermal conductivity therein;

a second, fluid tight chamber formed in part by the intermediate support, adapted to have a liquid coolant circulating therein; and

a means for detecting the escape of the gas of high thermal conductivity from the first chamber.

4,374,723
APPARATUS FOR ELECTROPHORESIS

Olof A. Y. Vesterberg, Saltsjö-Duvnäs, Sweden, assignor to C. Desaga GmbH Nachf. Erich Fecht, Heidelberg, Fed. Rep. of Germany

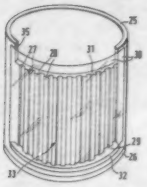
Division of Ser. No. 94,308, Nov. 13, 1979, Pat. No. 4,337,131. This application Mar. 11, 1981, Ser. No. 242,680

Claims priority, application Sweden, Nov. 13, 1978, 78117207; Fed. Rep. of Germany, Nov. 2, 1979, 2944127

Int. Cl.³ B01D *13/02*

U.S. Cl. 204—299 R **7 Claims**

1. In an apparatus for conducting an electrophoretic process for the investigation, analysis and/or production of chemical substances which apparatus comprises channels adapted to contain a gel carrier medium, the opposite ends of said channels being in contact with electrode vessels adapted to contain buffer solution, said vessels being connected to opposite poles of a direct current source, the improvement wherein the apparatus contains a support plate which has elongated, essentially parallel troughs, slots, grooves or the like constituting the said channels which are designed to hold strips of the said gel carrier medium and which channels are sealable by applying at least one plate-like, film-like or foil-like element to the corresponding flat side of the said support plate at its exposed longitudinal side, whereby, if desired, end regions at the top and bottom may be left exposed.



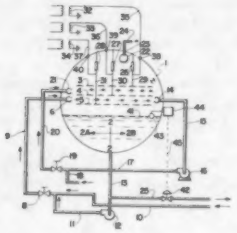
4,374,724
PLURAL STAGE DESALTING/DEHYDRATING APPARATUS

James R. Robinson, Houston, Tex., assignor to Petrolite Corporation, St. Louis, Mo.

Filed Sep. 15, 1980, Ser. No. 187,282

Int. Cl.³ C10G *33/02*; B01D *17/06*

U.S. Cl. 204—302 **6 Claims**



1. An apparatus for desalting oil-continuous oil-water emulsions, said apparatus comprising a closed horizontally disposed vessel, generally cylindrical in form, which is provided therein with two hydraulically substantially independent coalescing stages, there being contained within said closed vessel: three horizontally disposed permeable planar electrodes in vertically spaced relationship, each said electrode extending substantially the entire length and width of said vessel; first stage distributor means and conduit means for supplying oil-water emulsion to said first stage distributor means, said first stage distributor means extending longitudinally along one side of said vessel; collector means extending longitudinally along the opposing side of said vessel opposite said first stage distributor means; said first stage distributor means and said collector means being adapted to cause said emulsion to flow in a first stage treatment transversely from said one side to said opposing side of said vessel between the bottom and middle electrodes to form a first stage product; second stage distributor means and conduit means for supplying a second stage oil-water emulsion to said second stage distributor means; said second stage distributor means extending longitudinally along said one side of said vessel and adapted to cause said emulsion to flow transversely in a second stage treatment to the opposite side of said vessel between the top and middle electrode; product collector means and outlet means in the upper portion of said vessel; said permeable electrodes and the vessel interior being adapted and arranged to permit water to pass downwardly through said electrodes to the lower portion of said vessel; water withdrawal means in the lower portion of said vessel; first stage mixing means, conduit means for supplying oil feed and water to said mixing means, said first stage mixing means being

adapted to supply oil-water emulsion to said conduit means for supplying oil-water emulsion to said first stage distributor means; second stage mixing means, pumping and conduit means for withdrawing said first stage product from the first stage collector means and passing it to said second stage mixing means; conduit means for supplying water to said second stage mixing means, said second stage mixing means adapted to supply second stage oil-water emulsion to said conduit means for supplying said second stage emulsion to said second stage distributor means.

4,374,725
PROCESS FOR COAL LIQUEFACTION

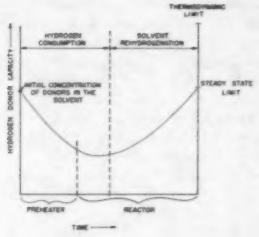
Darrell D. Whitehurst, Titusville; Thomas O. Mitchell, Trenton, and Malvina Farcasiu, Princeton, all of N.J., assignors to Electric Power Research Institute, Palo Alto, Calif.

Filed May 8, 1978, Ser. No. 903,912

Claims priority, application United Kingdom, Jun. 8, 1977, 23952/77

Int. Cl.³ C10G *1/00*

U.S. Cl. 208—8 LE **6 Claims**



1. In a process for solvent refining coal by heating a mixture of comminuted coal and a steady state recycle solvent containing hydrogen donor components and derived as hereinafter recited, maintaining the said mixture under hydrogen pressure at reaction conditions for solubilization of coal components, separating undissolved solids from the resultant reaction products and separating solvent refined coal product from a recycle solvent fraction boiling in the range of about 190° C. to about 500° C. for mixture with coal as aforesaid; the improvement for control of the degree of hydrogen donor components in said recycle solvent which comprises separating from the said reaction products a fraction containing the compounds having fourteen carbon atoms or less, removing normally gaseous compounds from said fraction to provide a light liquid fraction, and blending said light liquid fraction with said recycle solvent fraction in a ratio such that the blend contains an enhanced proportion of hydrogen donors having fourteen or less carbon atoms.

4,374,726
SEPARATION OF HYDROGEN FROM A CATALYTIC REFORMING ZONE EFFLUENT STREAM

Eugene Schmelzer, Skokie, and Constante P. Tagamolila, Des Plaines, both of Ill., assignors to UOP Inc., Des Plaines, Ill.

Continuation of Ser. No. 228,515, Jan. 26, 1981, abandoned. This application Mar. 18, 1982, Ser. No. 359,325

Int. Cl.³ C10G *47/00, 49/22*

U.S. Cl. 208—101 **7 Claims**

1. A process for the catalytic reforming of a hydrocarbonaceous feedstock which comprises the steps of:

(a) contacting said feedstock with a reforming catalyst in a reforming zone in the presence of recycle hydrogen, said reforming zone being maintained at reforming conditions including a pressure of from about 50 to about 250 psig to produce an effluent stream comprising hydrogen admixed with hydrocarbon conversion products;

(b) separating said effluent in a first gas-liquid separation zone at a low pressure relative to said reforming zone and forming a hydrogen-rich vapor phase and a liquid hydrocarbon phase comprising the heavier hydrocarbon conversion products;

(c) compressing one portion of said vapor phase to said reforming pressure and recycling the same to said reforming zone in admixture with the hydrocarbonaceous feedstock initially charged thereto to provide substantially all of said recycle hydrogen in accordance with step (a);

(d) compressing the balance of said hydrogen-rich vapor phase to a high pressure relative to said reforming pressure;

(e) admixing the vapor phase from step (d) with at least a portion of the liquid hydrocarbon phase from step (b) at said relatively high pressure;

(f) treating the resulting mixture in a second gas-liquid separation zone at said relatively high pressure and forming a vapor phase comprising a relatively pure net hydrogen product and a liquid hydrocarbon phase comprising hydrocarbon conversion products;

(g) discharging the net hydrogen product from the reforming process; and,

(h) introducing the liquid hydrocarbon phase into a fractionation column at conditions to produce an overhead fraction comprising light hydrocarbon conversion products, and a higher boiling fraction comprising the heavier hydrocarbon conversion products.

4,374,727
ELECTROSTATIC SORTING APPARATUS

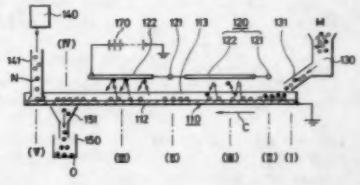
Takeo Takahashi, and Koichi Tabei, both of Kanagawa, Japan, assignors to Fuji Electric Co., Ltd., Kanagawa, Japan

Filed May 27, 1981, Ser. No. 267,510

Claims priority, application Japan, May 28, 1980, 55-71212; May 28, 1980, 55-71213

Int. Cl.³ B03C *7/04, 7/08*

U.S. Cl. 209—127 B **11 Claims**



1. An electrostatic sorting apparatus comprising:

sorting means comprising a trough-like channel formed on the upper surface of a horizontal conveyor member, said conveyor member being driven from a supplying position of a mixture to be sorted toward a sorting and recovering position;

high voltage d-c electrode means comprising a corona discharge electrode and a flat electrode, said flat electrode confronting said conveyor member, said conveyor member forming an opposed electrode with said flat electrode and said conveyor member being at a different potential than said flat electrode, wherein insulating particles of said mixture are charged with the same polarity as said high voltage electrode means by means of an ion shower caused by said corona discharge electrode to attract said insulating particles into said channel of said sorting means, and wherein conductive particles of said mixture are charged with the same polarity as said conveyor member by electrostatic induction to reciprocate said conductive particles between said conveyor belt and said flat electrode of said high voltage electrode by electrostatic force

to thereby move said conductive particles out of said channel;

mixture supplying means for supplying said mixture to said channel of said sorting means; and

means for separately collecting conductive particles and insulating particles sorted from said mixture.

4,374,728

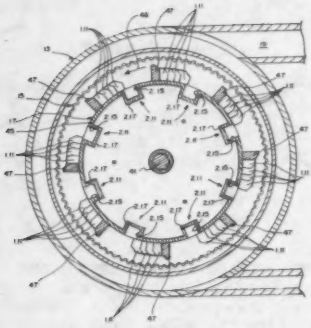
APPARATUS FOR SCREENING FIBROUS STOCK

W. Thomas Gauld, 4313 Winding Way, Mobile, Ala. 36609

Filed Jul. 29, 1981, Ser. No. 288,101

Int. Cl.³ B07B *1/20*

U.S. Cl. 209—273 4 Claims



1. An improved apparatus for screening fibrous stock of the type including a hollow housing member having an inlet port for allowing fibrous stock to be introduced into the interior thereof and having an outlet port for allowing screened fibrous stock to be discharged therefrom; a cylindrical, open ended screen member positioned within said housing member; said housing member including structure means for fixedly mounting said screen member within said housing member and for isolating the outer side of said screen member to divide the interior of said housing member into a first chamber and a second chamber with the boundary between said first and second chambers defined in part by said screen member, said inlet port communicating directly with said first chamber and said outlet port communicating directly with said second chamber; a rotatable shaft member located substantially along the longitudinal axis of said screen member; a rotor means for causing fibrous stock within said first chamber to pass through said screen member into said second chamber and out said outlet port, said rotor means including a cylindrical body member fixedly attached to said shaft member for rotation therewith and including a plurality of blade members attached to and spaced substantially evenly about the circumference of said body member and radiating outwardly therefrom, each of said blade members having a leading side and a trailing side and having an outer side joining said leading and trailing sides, said body member having a substantially closed first end and a second end and a side wall, said blade members extending between said first and second ends of said body member; wherein the improvement comprises: a plurality of passageway means in said body member for allowing a portion of the fibrous stock entering said inlet port to pass from said first end of said body member to a point between said first and second ends of said body member, the combined cross-sectional area of said passageway means being greatly less than the cross-sectional area of said first end of said body member.

4,374,729

STRAINER DRUM FOR PULP AND THE LIKE

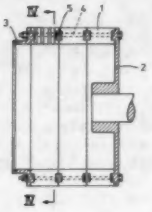
Rune H. Frykhult, Huddinge, Sweden, assignor to AB Celleco, Stockholm, Sweden

Filed Jan. 26, 1981, Ser. No. 228,543

Claims priority, application Sweden, Jan. 24, 1980, 8000563

Int. Cl.³ B01D *33/06*

U.S. Cl. 210—232 7 Claims



1. A strainer drum for straining pulp and the like, comprising a substantially circular cylindrical mantle having a longitudinal axis and formed by strainer elements provided with strainer openings, a pair of gables forming opposite ends of the drum and between which the strainer elements are held together to form said mantle, said elements having inter-abutting edges to form a circular series of said elements as viewed in a plane transverse to said axis, there being a plurality of said circular series interposed between said gables, first means releasably interlocking said abutting edges in each circular series to prevent radial movement of said elements, each pair of adjacent circular series having interengaging surfaces, and second means releasably interlocking said interengaging surfaces to interconnect the strainer elements of each circular series in said adjacent pair.

4,374,730

PROCESS AND APPARATUS FOR THE BIOLOGICAL PURIFICATION OF SEWAGE

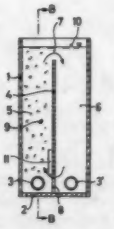
Alexandru Braha, Frankenthal; Hans Daucher, Ludwigshafen; Klaus Hess, Bad Durkheim; Peter Kroetzsch, Ketsch; Helmut Merkel, Lampertheim; Roland Roedl, Neustadt; Walter Schwaegerl, Hessheim, and Richard Stickel, Bad Durkheim, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Filed Dec. 12, 1980, Ser. No. 215,758

Claims priority, application Fed. Rep. of Germany, Jan. 25, 1980, 3002604

Int. Cl.³ C02F *3/30*

U.S. Cl. 210—608 8 Claims



1. A process for the biological purification of effluent which is contaminated with nitrogen in the form of ammonium, nitrite or nitrate ions or in the form of organic compounds, by oxidizing the nitrogen under aerobic conditions and reducing the

nitrogen under anaerobic conditions, without resort to moving filter beds, said process comprising the steps of:

mixing the sewage to be treated with activated sludge;

introducing oxygen-containing gas bubbles, in an aerobic compartment of an activated sludge basin, from below and thus subjecting the sewage to said bubbles, said basin having a vertical partition which divides the basin into said aeration compartment and a denitrification compartment,

simultaneously enriching said sewage with dissolved oxygen, to oxidize carbon compounds and nitrogen compounds,

transporting the sewage upward, and

causing gas to be released at the surface of the liquid,

the sewage being subjected to the gas bubbles in such a way that two substantially orthogonal circulation paths are set up for the sewage over the first of which paths the sewage, upon being transported upward, due to the higher average density of the mixture of lower gas content in part automatically flows downward again in the aeration compartment to undergo further aeration, and over the second of which paths to another part overflows into a denitrification compartment, and denitrification compartment communicating through an opening at the liquid surface and with the aeration compartment through an opening at the bottom of the partition between said compartments;

causing the sewage, in the denitrification compartment, to be physically mixed with the contents thereof, and

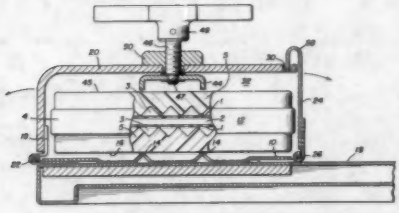
causing the sewage to flow back, through said opening at the bottom, to the aeration compartment.

4,374,731

METHOD AND APPARATUS FOR OBTAINING A DESIRED RATE OF PLASMA COLLECTION FROM A MEMBRANE PLASMAPHERESIS FILTER

Richard I. Brown, Northbrook, and Arnold C. Bilstad, Deerfield, both of Ill., assignors to Baxter Travenol Laboratories, Inc., Deerfield, Ill.

Filed Mar. 6, 1980, Ser. No. 127,733
Int. Cl.³ B01D *31/00, 13/00*
U.S. Cl. 210—637 9 Claims



1. A method for obtaining a desired rate of plasma collection from a membrane plasmapheresis filter having a pair of spaced microporous filter membranes defining therebetween a blood flow path which has spaced inlet and outlet ends and which expands in cross section during blood flow therethrough, which method comprises the steps of:

establishing a flow of blood between the inlet and outlet ends of the blood flow path,

applying pressure against and at substantially a perpendicular direction with respect to the membranes essentially along the entire axial length of the blood flow path between the inlet and outlet ends thereof to establish the spacing between the membranes to develop at the inlet end of the blood flow path a blood pressure preselected to achieve a desired transmembrane pressure, and

continuously maintaining the pressure essentially along the entire axial length of the blood flow path to prevent a subsequent expansion of the blood flow path in cross section during the plasmapheresis procedure and to thereby maintain the desired blood inlet pressure.

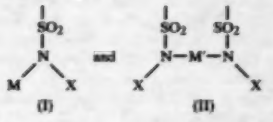
4,374,732

RESINS FOR REMOVAL OF ORGANO-SULFUR COMPOUNDS FROM ORGANIC OR AQUEOUS MEDIA

Roger J. Hopper, Akron, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

Continuation-in-part of Ser. No. 198,022, Oct. 17, 1980, abandoned, which is a continuation of Ser. No. 61,577, Jul. 30, 1979, abandoned, which is a continuation-in-part of Ser. No. 918,243, Jun. 23, 1978, abandoned. This application Sep. 30, 1981, Ser. No. 307,348
Int. Cl.³ B01D *15/00, 15/04*
U.S. Cl. 210—690 1 Claim

1. A process of removing organo-sulfur impurities from a solution comprising, contacting said solution with a polymer which is a styrene/divinylbenzene copolymer containing 0.1 to 35 parts by weight of divinylbenzene per hundred parts by weight of the polymer, said polymer being characterized by containing at least one of the following pendant groups:



(I) (II)

wherein X is selected from the group consisting of chlorine and bromine, M is selected from the group consisting of sodium and potassium and M' is selected from the group consisting of calcium and magnesium wherein said polymer contains at least one mole of said pendant groups for every mole of said organo-sulfur impurities that are to be removed, and said organo-sulfur impurities being characterized by the structural formulae, RS_nR^1 and R^2SH, wherein R, R^1 and R^2 are hydrocarbon radicals such as alkyl radicals having 1 to 20 carbon atoms, monounsaturated alkyl radicals having 3 to 20 carbon atoms diunsaturated alkyl radicals having 4 to 20 carbon atoms, aryl radicals having 6 to 20 carbon atoms, aralkyl radicals having 7 to 20 carbon atoms, cycloalkyl radicals having 5 to 12 carbon atoms and n' equals 1 to 2, and those having the structure

wherein R^3 is an alkylene radical of 3 to 6 carbon atoms, optionally branched with one or two alkyl groups of 1 to 6 carbon atoms, and wherein R, R^1, R^2, and R^3 may optionally contain chloro, bromo, fluoro, hydroxy, alkoxy, aryloxy, cyano, nitro, carboalkoxy, carboaryloxy, alkylsulfonyl and arylsulfonyl substituents located one or more carbon atoms from the carbon attached to sulfur.

4,374,733

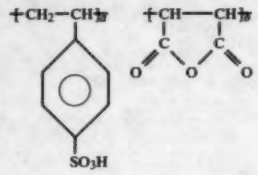
METHOD FOR TREATING AQUEOUS MEDIUMS

William R. Snyder, Warminster, and Diane Feuerstein, Bensalem, both of Pa., assignors to Betz Laboratories, Inc., Trevose, Pa.

Filed Apr. 1, 1981, Ser. No. 249,774
Int. Cl.³ C02F *5/10*
U.S. Cl. 210—701 15 Claims

1. Method of controlling the deposition of scale imparting precipitates on the structural parts of a system exposed to an aqueous medium containing scale imparting precipitates under deposit forming conditions, said scale imparting precipitates being selected from the group consisting of calcium carbonate,

calcium phosphate, and calcium sulfate, and mixtures thereof, said method comprising adding to said aqueous medium an effective amount for the purpose of a water soluble polymer (I) comprising a copolymer of acrylic acid or water soluble salt thereof and 2 hydroxypropylacrylate or hydroxyethylacrylate wherein said polymer (I) has a molecular weight of from about 500 to 1,000,000, and also adding to said aqueous medium an effective amount of a water soluble polymer (III) or water soluble salt or hydrolysate acid form thereof, said polymer (III) comprising a sulfonated styrene/maleic anhydride copolymer having the formula



wherein the molar ratio a:b of said polymer (II) is about 3:1 and wherein the molecular weight of said polymer (II) is about 1500 and wherein the molar ratio of polymer (I) to polymer (II) is about 10:1 to 1:10 and wherein said polymer (I) and (II) are added to said aqueous medium in an amount of about 0.1–500 parts polymer (I) and (II) per million parts of said aqueous medium.

4,374,734

EMULSION BREAKING OF SURFACTANT STABILIZED CRUDE OIL IN WATER EMULSIONS

Jack Newcombe, Tulsa, Okla., assignor to Cities Service Co., Tulsa, Okla.

Filed Jun. 19, 1981, Ser. No. 275,473
Int. Cl.³ B01D *17/04*
U.S. Cl. 210—708 **8 Claims**

1. Process for recovering crude oil from an oil-in-water emulsion comprising crude oil, water, and sufficient petroleum sulfonate surface active agents with an equivalent weight range of 350 to 500 to stabilize said emulsion, said process comprising:

(a) adding to the emulsion

(1) an amount of brine equivalent to 1 to 50 wt % of the total emulsion prior to brine addition,

(2) 100 to 1000 wt ppm of quaternary ammonium surfactant compound with a molecular weight of 200 to 700, based on the original emulsion, and

(3) 100 to 1000 wt ppm of polyol emulsion breaking reagent with a molecular weight of 1,000 to 10,000, based on the original emulsion,

(b) mixing the above components to break said oil-in-water emulsion, and

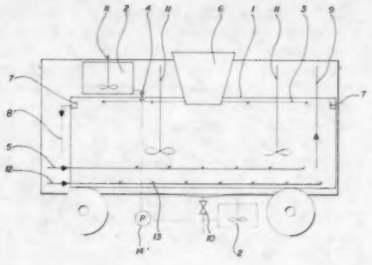
(c) settling the mixture to recover a sprung, or released, oil phase of reduced water content from a water phase.

4,374,735

METHOD FOR REMOVAL OF OIL FROM SORBENTS USING GLYCOLIPIDS

Walter Lindörfer, Kassel; Walther Schulz, Vechta; Fritz Wagner, Stöckheim, and Wilhelm Jahn-Held, Staufenberg, all of Fed. Rep. of Germany, assignors to Wintershall Aktiengesellschaft, Kassel and Gesellschaft fur Biotechnologische Forschung, Braunschweig-Stockheim, both of, Fed. Rep. of Germany, part interest to each

Filed Jun. 11, 1980, Ser. No. 158,621
Claims priority, application Fed. Rep. of Germany, Jul. 16, 1979, 2928674
Int. Cl.³ E02B *15/04*
U.S. Cl. 210—772 **5 Claims**



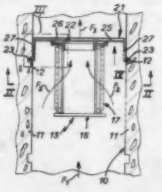
1. A process for separating oils or petroleum hydrocarbons from a sorbent material saturated with said oils or petroleum hydrocarbons which consists essentially of mixing said sorbent material with an aqueous solution or dispersion of microbially produced glycolipids to form a slurry and separating the oil-containing phase rising out of the aqueous phase, wherein said sorbent material is selected from the group consisting of hydrophobic, thermally expanded vermiculites and perlites.

4,374,736

DUAL-FLOW BAND SCREEN AND PROCESS FOR SUBSTITUTING IT FOR A THROUGH-FLOW BAND SCREEN

Philip Jackson, Paris, France, assignor to E. Beaudrey & Co. Societe Anonyme, Paris, France

Filed Feb. 24, 1981, Ser. No. 237,719
Claims priority, application France, Mar. 3, 1980, 80 04678
Int. Cl.³ B01D *33/02*
U.S. Cl. 210—783 **10 Claims**



1. A dual-flow band screen for a sluice, said dual-flow band screen comprising a carrying frame, a screening band mounted for movement in an endless loop on said carrying frame, and a support wall mountable in guides provided in the sluice and cooperable with said carrying frame and positioning said carrying frame in the sluice, said support wall extending perpendicularly to generatrices of said screening band and generally parallel to said carrying frame, an aperture in said support wall being wholly contained within the contour defined by said screening band, said support wall having lips for engagement in the guides.

4,374,737

NONPOLLUTING DRILLING FLUID COMPOSITION

Dana E. Larson; Ronnie J. Mouton, both of P.O. Box 53094, Lafayette, La. 70505, and Chris J. Mocek, Houston, Tex., assignors to Dana E. Larson and Ronnie J. Mouton, both of Lafayette, La.

Continuation of Ser. No. 111,543, Jan. 14, 1980, abandoned. This application Jul. 24, 1981, Ser. No. 285,431

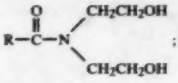
Int. Cl.³ C09K 7/06

U.S. Cl. 252—8.5 P 7 Claims

1. A composition for use as a drilling mud when mixed with water which consists essentially of:

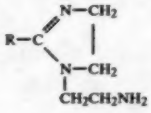
a concentrate consisting essentially of:

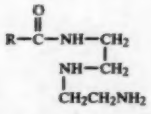
12.5% to 42.5% by weight of diethanolamide, which consists essentially of

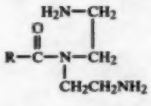


40.0% to 70.0% by weight of a tall oil fatty acid, which consists essentially of

and 2.5% to 32.5% by weight of imidazoline/amide mixture, which consists essentially of







wherein R is primarily unsaturated straight chain hydrocarbon groups having 17 carbon atoms and is the hydrocarbon residue remaining after removal of the carboxyl group from tall oil fatty acids

and a bidodegradable, non-polluting oil, wherein the concentrate constitutes a minor amount of the composition sufficient to act as an emulsifier when the composition is added to water.

4,374,738

DRILLING FLUID COMPOSITION

Jack R. Kelley, Whatcom County, Wash., assignor to Georgia-Pacific Corporation, Atlanta, Ga.

Continuation of Ser. No. 157,876, Jun. 9, 1980, abandoned. This application Sep. 21, 1981, Ser. No. 303,946

Int. Cl.³ C09K 7/02

U.S. Cl. 252—8.5 C 19 Claims

1. A water-base drilling fluid comprising a suspension of clay material and an effective dispersing amount of a water-soluble graft copolymer which is the reaction product of lignosulfonate and an acrylic compound selected from the group consisting of acrylic acid, acrylonitrile, acrylamide, and esters of alcohols of one or two carbon atoms and acrylic acid, said reaction product being prepared by reacting lignosulfonate with from 5 to 30 weight percent said acrylic compound at a pH below 6 using a free radical initiator, said reaction product having an average molecular weight not exceeding about 80,000.

4,374,739

OIL WELL TREATING METHOD AND COMPOSITION

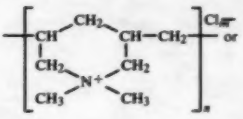
Homer C. McLaughlin, and Jimmie D. Weaver, both of Duncan, Okla., assignors to Halliburton Company, Duncan, Okla.

Continuation of Ser. No. 901,664, May 4, 1978, which is a continuation-in-part of Ser. No. 714,213, Aug. 13, 1976, abandoned. This application Feb. 4, 1980, Ser. No. 117,938

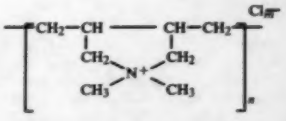
Int. Cl.³ E21B 43/12, 43/25

U.S. Cl. 252—8.55 R 4 Claims

1. A method of treating a clay-containing earth formation for the purpose of preventing or at least reducing the swelling, migration and/or dispersion of said clay to thereby stabilize said formation, said method being comprised of contacting said clay in said formation with an effective amount of an organic polycationic polymer dispersed or dissolved in a carrier fluid, said contacting being for a time sufficient for said organic polycationic polymer to replace cations to thereby transform said clay to a more stable form wherein said organic polycationic polymer contains repeating monomer units defined by at least one of the structural formulae:



or



wherein:

n is an integer equal to the number of monomer units in the polymer required to give a molecular weight in the range of from about 800 to 3,000,000; and

m is an integer equal to the number of anions required to maintain electronic neutrality.

4,374,740

WATER SOLUBLE SURFACTANT MOBILITY CONTROL AGENT IN OIL RECOVERY

Catherine S. H. Chen, Berkeley Heights, N.J., assignor to Mobil Oil Corporation, New York, N.Y.

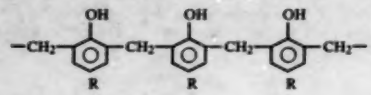
Filed Jan. 16, 1981, Ser. No. 225,573

Int. Cl.³ E21B 43/22

U.S. Cl. 252—8.55 D 7 Claims

1. In a method of recovering oil from an oil containing subterranean formation penetrated by one or more injection wells and a production well and wherein an aqueous fluid is injected via said injection well, or wells, into said formation to displace said oil to said production well, the improvement comprising: employing in at least a portion of said aqueous fluid injected via said injection well, or wells, into said formation a water-soluble polymer having a molecular weight within the range of 10,000 to 10,000,000, said polymer being employed in a sufficient amount to thicken said portion of said aqueous fluid and provide improved efficiency in displacing said oil to said production well, said water-soluble copolymer

being formed of synthetic polymers having stiff backbones wherein the main chain consists of



wherein at least 20 percent by wt. of the OH groups have been replaced by:

$$-O-(CH_2-CH_2-O)_y-CH_2-CH_2-CH_2SO_3Na$$

where y is 2 to 10 and wherein R is alkyl having from about 1 to 30 carbon atoms, aryl having from about 6 to 24 carbon atoms or alkylaryl having from about 6 to 30 carbon atoms.

4,374,741

POLYAMIDE AND FUNCTIONAL FLUID CONTAINING SAME

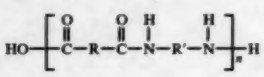
Walter E. Rieder, Arcadia, Calif., assignor to Cincinnati Milacron Inc., Cincinnati, Ohio

Filed Jul. 21, 1981, Ser. No. 285,575

Int. Cl.³ C10M *1/06, 1/20, 1/36;* **C08F** *36/00*

U.S. Cl. 252—34 **33 Claims**

1. A polyamide derivative of a polyoxalkylene diamine wherein said polyamide has (a) a single terminal carboxylic acid group and a single terminal amine group in the same molecule, and (b) a degree of polymerization of from 2 to 10 or the salt of the polyamide which is the salt of (c) the terminal carboxylic acid group, (d) the terminal amine group, or (e) both the terminal carboxylic acid and terminal amine groups, wherein the polyamide has the following formula



where

R is a divalent aliphatic, aromatic, arylaliphatic, alkylaromatic, cycloaliphatic, heteroaliphatic having oxygen or sulfur heterochain atoms, heterocyclic having one to two oxygen, sulfur or nitrogen hetero ring atoms and from 5 to 6 ring atoms or bicyclic radical or the halogenated derivatives of said divalent radical,

R′ is a divalent polyoxyalkylene homopolymer or copolymer radical and

n is 2 to 10,

said polyamide and its salts having an average molecular weight not greater than about 50,000.

4,374,742

NOVEL LUBRICANT ADDITIVES

Samuel Evans; Michael Rasberger, and Eberhard Gegner, all of Riehen, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

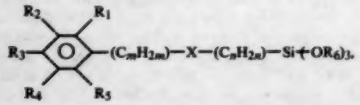
Continuation of Ser. No. 64,238, Aug. 6, 1979, abandoned. This application May 29, 1981, Ser. No. 268,309

Claims priority, application Switzerland, Aug. 18, 1978, 8790/78

Int. Cl.³ C07F *7/08, 7/10*

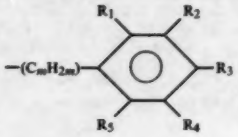
U.S. Cl. 252—48.4 **11 Claims**

1. A compound of the formula I



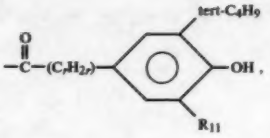
(I)

wherein one of R_1 and R_3 is hydrogen and the other is OH, each of R_2, R_4 and R_5 independently is C_1–C_{12}alkyl, C_5–C_7cycloalkyl, C_6–C_{10}aryl or C_7–C_9aralkyl, and R_4 and R_5 are also hydrogen, R_6 is C_1–C_{18}alkyl, each of m and n independently is an integer from 0 to 6, X is the direct bond, —O—, —S—, —N(R_7)—, —Q—R_8— or



(II)

wherein R_7 represents hydrogen, C_1–C_{12}alkyl, phenyl or a group of the formula II



(IV)

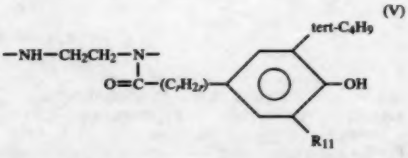
wherein R_1, R_2, R_3, R_4, R_5 and m are as defined above, Q is —O— or —NH—, R_8 represents a group of the formula III

$$-CH_2-CH(OR_{10})-CH_2-O- \quad \text{(III)}$$

wherein R_{10} is hydrogen, C_1–C_{12}alkyl or a group of the formula IV

wherein r is an integer from 0 to 6, R_{11} is hydrogen, C_1–C_{12}alkyl, C_5–C_7cycloalkyl, C_6–C_{10}aryl or C_7–C_9aralkyl, and R_9 is —O—, —NH—, —CH.H_2N—, —O—CH_2CH_2—S—,

—O—R_8—, or a group of the formula V

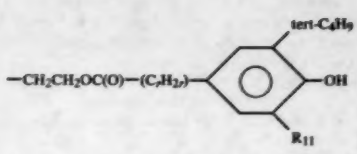


(V)

wherein R_8, R_{11} and r are as defined above, and R_{12} is C_1–C_1-salkyl, C_5–C_7cycloalkyl, C_6–C_{10}aryl, C_7–C_9aralkyl or a group of the formulae VI or VII

$$-(C_sH_{2s})-COOR_{10} \quad \text{(VI)}$$

or



(VII)

wherein u is an integer from 1 to 6 and R_{10}, R_{11} and r are as defined above.

4,374,743

METHOD OF PREPARING SNOW AND ICE CONTROL COMPOSITIONS

Richard F. Stockel, 475 Rolling Hills Rd., Bridgewater, N.J. 08807

Continuation-in-part of Ser. No. 38,877, May 14, 1979, abandoned. This application Nov. 3, 1980, Ser. No. 203,642
Int. Cl.³ C09K 3/18
U.S. Cl. 252—70 6 Claims

1. A method o , reparing a snow and ice control composition comprising the steps of combining a coal ash material, a salt and/or organic material for lowering the melting point of snow or ice, a silicate finding agent having a silica/alkali metal oxide ratio of 3.50 to 2.00 and enough water to form a dough-like workable mixture; pelletizing said mixture and heating said pellets to form shaped particles having excellent crush resistance.

4,374,744

STRIPPING SOLUTION FOR TIN OR TIN ALLOYS

Yutaka Kawanabe, Toyonaka, and Takeyoshi Kishimoto, Yamatokoriyama, both of Japan, assignors to Mec Co., Ltd., Hyogo, Japan

Filed Apr. 6, 1982, Ser. No. 366,018
Claims priority, application Japan, Apr. 6, 1981, 56-50515
Int. Cl.³ C09K 13/06; C11D 7/00; C23F 1/00
U.S. Cl. 252—79.4 12 Claims

1. A stripping solution for tin and tin alloys comprising an inorganic and/or organic acid, an oxidizing agent and a heterocyclic compound free of sulfur but containing a nitrogen atom in the form of =NH or =N as a ring-forming member.

4,374,745

CLEANING COMPOSITIONS

Murray J. Sibley, Berkley, and Rebecca F. Nite, Cupertino, both of Calif., assignors to Barnes-Hind Pharmaceuticals, Inc., Sunnyvale, Calif.

Filed Aug. 13, 1981, Ser. No. 292,752
Int. Cl.³ C11D 1/68, 3/20
U.S. Cl. 252—106 14 Claims

1. An aqueous composition for cleaning lenses and spectacle frames comprising:
(a) from 0.02 to 25.0% by weight of at least one nonionic cleaner;
(b) from 0.01 to 10.0% by weight of a diglycol carbonate monomer;
(c) from 0.01–10.0% by weight of an anti-fogging agent;
(d) up to about 25% by weight of a lower aliphatic alcohol;
(e) up to 1.0% by weight of a preservative agent; and
(f) water.

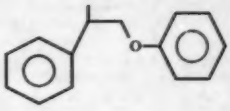
4,374,746

CYCLOHEXYL PHENETHYLETHER DERIVATIVES, PROCESS FOR PREPARING SAME AND USES THEREOF IN COMBATTING TOBACCO BEETLES AND IN AUGMENTING OR ENHANCING THE AROMA OF PERFUMES, COLOGNES AND PERFUMED ARTICLES

Jacob Kiwala, Brooklyn, N.Y.; Richard J. Tokarzewski, Keyport, N.J.; Frederick L. Schmitt, Holmdel, N.J., and Mark A. Sprecker, Sea Bright, N.J., assignors to International Flavors & Fragrances Inc., New York, N.Y.

Division of Ser. No. 235,844, Feb. 19, 1981, Pat. No. 4,324,923, which is a continuation-in-part of Ser. No. 192,238, Sep. 30, 1980, Pat. No. 4,306,096. This application Sep. 25, 1981, Ser. No. 305,537
The portion of the term of this patent subsequent to Apr. 13, 1999, has been disclaimed.
Int. Cl.³ C11D 3/50, 9/44
U.S. Cl. 252—174.11 1 Claim

1. A process for augmenting or enhancing the aroma of a solid or liquid anionic, cationic, nonionic or zwitterionic detergent comprising the step of adding to a solid or liquid anionic, cationic, nonionic or zwitterionic detergent base, an aroma augmenting or enhancing quantity of the cyclohexyl phenethylether derivative defined according to the structure:



4,374,747

BLEACH PRODUCTS

Ho T. Tai, Santes, France, assignor to Lever Brothers Company, New York, N.Y.

Filed Mar. 31, 1980, Ser. No. 136,136
Claims priority, application France, Apr. 20, 1979, 79 10064
Int. Cl.³ C11D 3/395, 7/54, 17/00
U.S. Cl. 252—186.26 12 Claims

1. A bleach product comprising a percompound contained within a closed water-insoluble but water-permeable bag of fibrous sheet material in the form of paper or of woven or non woven fabric provided with a protective water-impermeable coating, removable in water at a temperature of 30°–75° C. said coating being of an organic material which is solid at room temperature.

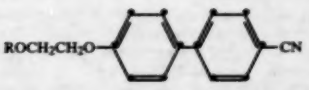
4,374,748

4'-(β-ALKYLOXYETHOXY)-4-CYANOBIPHENYL

Takashi Inukai; Hideo Sato; Hiromichi Inoue, and Masahiro Fukui, all of Yokohama, Japan, assignors to Chisso Corporation, Osaka, Japan

Filed Sep. 2, 1981, Ser. No. 298,769
Claims priority, application Japan, Sep. 4, 1980, 55-122681
Int. Cl.³ C09K 3/34; C02F 1/13
U.S. Cl. 252—299.66 4 Claims

1. A 4'-(β-alkyloxyethoxy)-4-cyanobiphenyl represented by the general formula:



(I)

wherein R represents a straight alkyl group having from 1 to 6 carbon atoms.

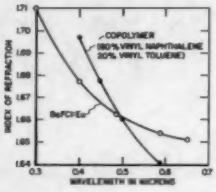
4,374,749
INDEX-MATCHED PHOSPHOR SCINTILLATOR STRUCTURES

Dominic A. Cusano, Schenectady, N.Y.; Robert K. Swank, Colorado Springs, Colo., and Philip J. White, Georgetown, Mass., assignors to General Electric Company, Schenectady, N.Y.

Division of Ser. No. 169,023, Jul. 15, 1980, Pat. No. 4,316,817, which is a continuation-in-part of Ser. No. 863,856, Dec. 23, 1977, abandoned. This application Nov. 12, 1981, Ser. No. 320,805

Int. Cl.³ C09K 11/465, 11/24

U.S. Cl. 252—301.36 6 Claims



1. A method of producing scintillator bodies for use in computerized tomography with increased detectable optical output from a phosphor which absorbs electromagnetic radiation at supra-optical frequencies and emits electromagnetic radiation at optical frequencies, said method comprising the steps of:

(A) pulverizing a polyvinyl naphthalene toluene polymer having an index of refraction equal to the index of refraction of BaFCl:Eu phosphor, at approximately the wavelength of the optical emission of the phosphor, said polymer being substantially transparent to the optical wavelength radiation emitted by the phosphor and also being substantially transparent to supra-optical electromagnetic radiation;

(B) uniformly mixing the pulverized polymer with the phosphor;

(C) heating the powder from step B at a sufficiently high temperature and pressure to cause the polymer to flow forming a solid body, but below a temperature so high as to cause decomposition of any component.

6. The scintillator body produced in accordance with claim 1.

4,374,750
FLUID CATALYST REGENERATION PROCESS AND APPARATUS

Anthony G. Vickers, Arlington Heights; Harold U. Hammershaimb, Western Springs, and Charles L. Hemler, Jr., Mt. Prospect, all of Ill., assignors to UOP Inc., Des Plaines, Ill.

Filed Aug. 3, 1981, Ser. No. 289,571

Int. Cl.³ B01J 29/38, 21/20; C10G 11/18, 11/05

U.S. Cl. 252—417 8 Claims

1. A process for regenerating a coke contaminated fluid catalyst, said process including the steps of:

(a) introducing oxygen containing regeneration gas, coke contaminated fluid catalyst, cool recycled regenerated catalyst and hot recycled regenerated catalyst from sources hereinafter described, into a lower locus of a dilute phase combustion zone maintained at a temperature sufficient for coke oxidation and therein oxidizing coke to produce hot regenerated catalyst and hot flue gas;

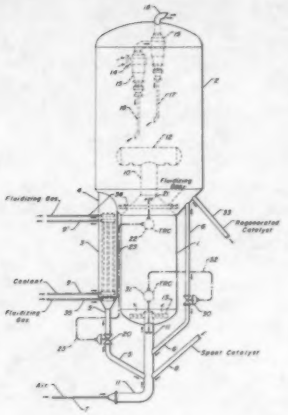
(b) transporting said hot flue gas and said hot regenerated catalyst from an upper locus of said combustion zone into a regenerated catalyst disengaging zone, wherein said hot regenerated catalyst is separated from said flue gas;

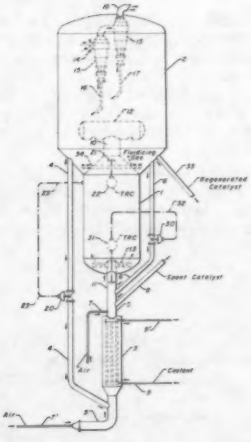
(c) transporting a first portion of said hot regenerated catalyst from said disengaging zone to a cooling zone separate from said disengaging zone wherein heat is withdrawn from said hot regenerated catalyst to produce cool regenerated catalyst;

(d) withdrawing said cool regenerated catalyst from said cooling zone and transporting it into said combustion zone as said cool recycled regenerated catalyst wherein said quantity of cool recycled regenerated catalyst is controlled responsive to a temperature sensed at said upper locus of said combustion zone; and

(e) transporting a second portion of said hot regenerated catalyst from said disengaging zone into said combustion zone as said hot recycled regenerated catalyst.

2. The process of claim 1 wherein said first portion of hot regenerated catalyst is introduced into an upper locus of said





cooling zone, is passed downwardly through said cooling zone in a dense phase fluidized bed, and said cool regenerated catalyst is withdrawn from said cooling zone at a lower locus thereof.

3. The process of claim 1 wherein said first portion of hot regenerated catalyst is introduced into a lower locus of said cooling zone, is carried upwardly through said cooling zone by a portion of said regeneration gas in a dilute phase, and said cool regenerated catalyst is withdrawn from said cooling zone at an upper locus thereof.

4,374,751

POLYMERIZATION INITIATOR COMPOSITIONS

Charles D. Dudgeon, Clifton Park, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Aug. 8, 1980, Ser. No. 176,723
Int. Cl.³ B01J 31/02
U.S. Cl. 252—426 16 Claims

1. A composition comprising an admixture of a polymerization initiator which is a radiation sensitive onium salt having the formula:

$$[[R_4X]_b{}^+[C]^{-b}](R_eX)_b{}^+(C)^{-b}$$

wherein:

each R is a monovalent organic aromatic radical;

X is selected from the group consisting of sulfur and iodine;

C is a Bronsted Acid polymerization catalyst precursor;

a equals the absolute value of (the valence number of X minus 1); and

b equals the absolute value of the valence number of C; in combination with an amount of a peroxide compound effective to activate said polymerization initiator.

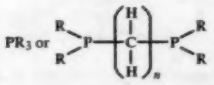
4,374,752

CATALYST AND PROCESS FOR THE CONVERSION OF METHANOL TO ACETALDEHYDE

Benny J. Argento, South Charleston, W. Va.; Wellington E. Walker, deceased, late of Sissonville, W. Va. by Maxine M. Walker, executrix, and Rocco A. Fiato, Scotch Plains, N.J., assignors to Union Carbide Corporation, Danbury, Conn.

Filed Jun. 30, 1981, Ser. No. 279,158
Int. Cl.³ C07C 45/49; B01J 27/08
U.S. Cl. 252—429 R 15 Claims

1. A catalyst system for the production of acetaldehyde by the reaction of methanol, carbon monoxide and hydrogen, which catalyst comprises (I) a source of cobalt, (II) a source of iodide or bromide, (III) an inert oxygen-containing diluent, and (IV) a trivalent phosphorus compound of the formula:



wherein each R group taken individually is similar or different, and is; (a) a saturated or unsaturated, linear or branched alkyl group having from 1 to 20 carbon atoms, or (b) an aryl, aralkyl, or alkaryl group having from 6 to 10 ring carbon atoms, or (c) a saturated or unsaturated cycloalkyl having from 5 to 8 ring carbon atoms, or (d) when two such R groups are attached to the same phosphorus atom and taken together, a saturated or unsaturated divalent alkyl group having from 4 to 10 carbon atoms; and wherein n is an integer from 2 to 10, and wherein the inert diluent to methanol volume ratio is from 0.3:1 to 20:1, the cobalt concentration is from 1 to 40 milligram-atoms of cobalt per gram-mole of methanol charged, the halide to cobalt milligram-atom ratio is from 1:1 to 10:1; and the phosphorus to halide milligram-atom ratio is from 0.1:1 to 2.8:1.

4,374,753

POLYMERIZATION CATALYST AND METHOD

Thomas J. Pullukat, Hoffman Estates, and Raymond E. Hoff, Palatine, both of Ill., assignors to Chemplex Company, Rolling Meadows, Ill.

Filed Jul. 29, 1981, Ser. No. 287,950
Int. Cl.³ B01J 31/38, 31/02
U.S. Cl. 252—429 B 41 Claims

1. A solid catalyst for use with an alkyl or aryl aluminum cocatalyst in the polymerization and copolymerization of 1-olefins, and prepared by:

(1) reacting an organic silicon compound with silica or alumina having surface hydroxyl groups or a mixture thereof, said silicon compound being reactive with said surface hydroxyl groups;

(2) reacting the product of (1) with a Group IIA organometallic compound;

(3) reacting the product of (2) with an alcohol; and

(4) reacting the product of (3) with a halide or alkoxide of titanium, vanadium, zirconium or mixtures of these.

4,374,754

SELF-CLEANING COATING COMPOSITIONS AND COOKING APPARATUS COATED THEREWITH

Nobushige Arai, Nara, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan

Continuation-in-part of Ser. No. 57,106, Jul. 12, 1979, abandoned. This application Jan. 30, 1981, Ser. No. 229,522
Claims priority, application Japan, Jul. 17, 1978, 53-87424; Jul. 27, 1978, 53-92388
Int. Cl.³ B01J 31/06, 21/12
U.S. Cl. 252—430 54 Claims

1. A composition for a self-cleaning coating which catalytically oxidizes and removes fats and oils deposited on said coating, comprising:

(a) at least one silicone synthetic resin binder selected from the group consisting of straight silicone resins, silicone resins copolymerized with alkyds, silicone resins copolymerized with epoxy, and silicone resins copolymerized with acrylics;

(b) an organic solvent; and

(c) a thermostable oxidation catalyst mixed within said silicone synthetic resin and said organic solvent.

2. The self-cleaning coating composition according to claim 1, wherein said oxidation catalyst includes at least one oxidation catalyst material selected from a metal material and a metal oxide.

5. The self-cleaning coating composition according to claim 2, wherein said metal oxide is selected from the group consisting of manganese oxide, copper oxide, iron oxide, nickel oxide and chrome oxide.

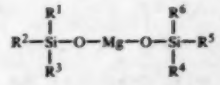
4,374,755

MAGNESIUM DISILOXIDE COMPOUNDS

Charles T. Berge; Mark P. Mack, and Charles M. Starks, all of Ponca City, Okla., assignors to Conoco Inc., Ponca City, Okla.

Filed Jun. 26, 1981, Ser. No. 277,583
Int. Cl.³ C07F 7/04, 7/08; B01J 31/12
U.S. Cl. 252—431 R 12 Claims

1. A method of preparing a magnesium disiloxide of the general formula



by contacting a silanol of the general formula

with magnesium metal in an inert solvent, allowing reaction to occur, then recovering magnesium disiloxide, wherein R^1, R^2, R^3, R^4, R^5, and R^6 are, independently, hydrogen, alkyl groups, cycloalkyl groups, alkaryl groups, aralkyl groups, aryl groups or bicycloalkyl groups.

4,374,756

VANADIUM-HYDROGEN-PHOSPHORUS-OXYGEN CATALYTIC MATERIAL

Philip H. Harju, Spring Church, and Eugene A. Pasek, Export, both of Pa., assignors to Koppers Company, Inc., Pittsburgh, Pa.

Filed Sep. 9, 1981, Ser. No. 300,710
Int. Cl.³ B01J 27/14
U.S. Cl. 252—435 24 Claims

1. Catalyst for partial oxidation of hydrocarbons, said catalyst comprising vanadium, non-water-contained hydrogen, phosphorus and non-water-contained oxygen, said vanadium present as a mixture of vanadium of plus 4 valence and vanadium of plus 5 valence, and at least a portion of said phosphorus and said non-water-contained oxygen present in a pyrophosphate group.

4,374,757

CATALYST AND PROCESS FOR PRODUCING METHACRYLIC ACID

Sargis Khoobiar, Kinnelon, N.J., assignor to The Halcon SD Group, Inc., New York, N.Y.

Filed Dec. 26, 1978, Ser. No. 973,354
Int. Cl.³ B01J 27/14; C07C 51/16
U.S. Cl. 252—437 1 Claim

1. A catayist composition suitable for the vapor-phase oxidation of methacrolein to produce methacrylic acid having the formula $Mo_aCu_bP_cSb_dCs_eO_f$ where: a=12; b=0.05–3; c=0.1–5; d=0.01–3; e=0.1–3; and f=value determined by the valence and proportions of the other elements of the formula.

4,374,758

PREPARATION OF STABLE TELLURIUM-CONTAINING SOLUTION FROM METALLIC TELLURIUM AND PROCESS FOR PRODUCING TELLURIUM-ANTIMONY CONTAINING OXIDE CATALYST USING SAID SOLUTION

Yutaka Sasaki, Yokohama, and Yoshimi Nakamura, Kawasaki, both of Japan, assignors to Nitto Chemical Industry Co., Ltd., Tokyo, Japan

Filed Mar. 12, 1981, Ser. No. 243,109
Claims priority, application Japan, Mar. 12, 1980, 55-30275
Int. Cl.³ B01J 27/02, 27/24; C01B 19/00
U.S. Cl. 252—439 27 Claims

1. A process for preparing a stable tellurium-containing solution from metallic tellurium by dissolving metallic tellurium by reaction with hydrogen peroxide in the presence of at least one reaction accelerator selected from the group consisting of (A) an ammonium ion, (B) an alkali metal ion, and (C) an oxide, oxyacid, or oxyacid salt of at least one element selected from the group consisting of vanadium, molybdenum, and tungsten.

4,374,759

CATALYSTS AND PROCESS FOR UNSATURATED ALDEHYDES

Sargis Khoobiar, Kinnelon, N.J., assignor to The Halcon SD Group, Inc., New York, N.Y.

Continuation of Ser. No. 939,645, Sep. 5, 1978, abandoned. This application Dec. 7, 1981, Ser. No. 327,848
Int. Cl.³ B01J 23/82, 21/00
U.S. Cl. 252—455 R 7 Claims

1. A catalyst composition suitable for the vapor-phase oxidation of isobutylene and/or tertiary butyl alcohol to produce methacrolein consisting essentially of the oxides of molybdenum, cobalt, iron, bismuth, thallium, antimony, silicon, nickel, and a member of the group consisting of the alkali metals, the alkaline earth metals, the rare earth metals including lanthanum, tungsten, and mixtures thereof and having a BET surface area between about 0.5 and about 10 square meters per gram of catalyst.

5. A catalyst composition suitable for the vapor-phase oxidation of isobutylene and/or tertiary butyl alcohol to produce methacrolein containing molybdenum, cobalt, iron, bismuth, thallium, antimony, and silicon wherein the improvement comprises adding catalytically effective amounts of nickel and, a member of the group consisting of alkali metals, the alkaline earth metals, the rare earth metals including lanthanum, tungsten, and mixtures thereof, and calcining said catalyst before use in said oxidation at a temperature of at least 525° C. in air for a sufficient period of time to reduce the BET surface area to the range of about 0.5–10 m^2/gm.

4,374,760

ELECTRO CONDUCTIVE POLYMER COMPOSITIONS AND NEW MATERIALS FOUND USEFUL IN THEIR PREPARATION

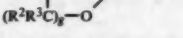
Harold Charles, 14 Bisset Dr., West Milford, N.J. 07480

Filed Sep. 12, 1980, Ser. No. 186,421
Int. Cl.³ H01B 1/06
U.S. Cl. 252—518 24 Claims

1. An electroconductive composition comprising from 10 wt. % to 95 wt. % of an electrically conductive particulate, from 4 wt. % to 90 wt. % of a polymer binder matrix, and from 0.01 wt. % to 5 wt. % based on the particulate weight content of an organo metallic additive selected from the group consisting of a compound represented by the formula;

$$(RO)_a(R^1O)_b\,M(C)_c(D)_d(E)_e$$

a compound represented by the formula II;



and mixtures of said components;

wherein M is selected from the group consisting of aluminum, titanium and zirconium;

a and b are each 0,1 or 2 but a+b must equal 1 or 2; c,d & e are each 0,1,2 or 3 but c+d must equal 3−(a+b) when M is aluminum; and

c+d+e must equal 4−(a+b) when M is titanium or zirconium;

f=0 or 1;

g=1,2 or 3 but f+g equals 2 or 3;

h and j are each 0, 1 or 2 but j+h=1 when M is aluminum and j+h=2 when M is titanium or zirconium;

R and R^1 are each selected from the group consisting of alkyl groups having from 1 to 12 carbon atoms, alkenyl groups having from 2 to 12 carbon atoms, and aralkyl groups having from 7 to 12 carbon atoms;

C,D,E,H and J are each monovalent ligands selected from the group consisting of monosubstituted amino, disubstituted amino, trisubstituted amino, alkanols having from 1 to 18 carbon atoms, arylalcohols having from 6 to 12 carbon atoms, alkenols having from 1 to 18 carbon atoms, and ester pyrophosphates having the generic formula;

$$-OP(O)(OR^5)OP(OR^6)(OR^7)(O)$$

wherein R^5, R^6 and R^7 are selected from the primary group consisting of alkyl groups having from 1 to 12 carbon atoms, alkenyl groups having from 2 to 18 carbon atoms, aryl groups having from 7 to 12 carbon atoms, aralkyl groups having from 7 to 12 carbon atoms; or wherein any two of said R^5, R^6 and R^7 is selected from said primary group and the remainder of R^5, R^6 and R^7 is selected from a secondary group consisting of hydrogen, an amine having the formula;

$$NR^3, R^9, R^{10}, R^{11}$$

wherein R^8, R^9, R^{10} and R^{11} are each selected from the group consisting of hydrogen, alkyl groups having from 1 to 12 carbon atoms, alkenyl groups having from 2 to 12 carbon atoms, and aralkyl groups having from 7 to 12 carbon atoms; and a phosphate having the formula;

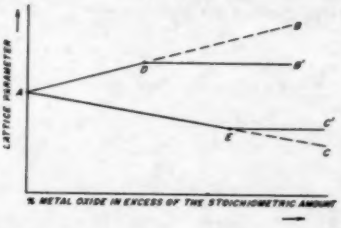
$$HP(OR^{12})(OR^{13})(OR^{14})$$

wherein R^{12} is selected from the group consisting of hydrogen, alkyl groups having from 1 to 12 carbon atoms, alkenyl groups having from 2 to 12 carbon atoms and aralkyl groups having from 7 to 12 carbon atoms and R^{13} and R^{14} are each selected from the group consisting of alkyl groups having from 1 to 12 carbon, alkenyl groups having from 2 to 12 carbon atoms and aralkyl groups having from 7 to 12 carbon atoms; and wherein R^{12}, R^{13}, and R^{14} may be taken together to form a ring structure bonded to HP.

4,374,761
INERT ELECTRODE FORMULATIONS

Siba P. Ray, Plum Boro, Pa., assignor to Aluminum Company of America, Pittsburgh, Pa.

Filed Nov. 10, 1980, Ser. No. 205,653
Int. Cl.³ H01B 1/06
U.S. Cl. 252—519 7 Claims



1. A composition suitable for fabricating into an inert electrode for use in the electrolytic production of metal from a metal compound dissolved in a molten salt, the composition comprising:

(a) a combination metal compound defined by the formula:

$$\left(\sum_{i=1}^{m}(M_i)F_{M_i}\right)\left(\sum_{j=1}^{g}(M_j)F'_{M_j}\sum_{i=1}^{m}(M_i)F'_{M_i}\right)_Z\left(\sum_{r=1}^{n}X_rF_{X_r}\right)_K$$

where

$$\sum_{i=1}^{m}F_{M_i}=1;\ \sum_{j=1}^{g}F'_{Mj}+\sum_{i=1}^{m}F'_{M_i}=1 \text{ and } \sum_{r=1}^{n}X_rF_{X_r}=1;$$

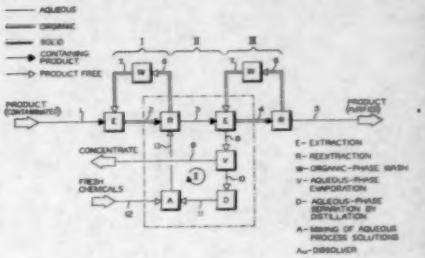
z is a number in the range of 1.0 to 2.2; K is a number in the range of 2.0 to 4.4; M_i is at least one metal having a valence of 1, 2, 3, 4 or 5 and is the same metal or metals when M_i is used in the composition; M_j is a metal having a valence of 2, 3 or 4, M_i and M_j being different metals; X_r is at least one of the elements from the group consisting of O, F, N, S, C and B; m, p and n are the number components which comprise M_i, M_j and X_r; F_{M_i}, F'_{M_j}, F'_{M_i} or F_{X_r} are the mole fractions of M_i, M_j and X_r and $0<F'_{M_i}<1$; and

(b) at least one metal powder dispersed through the combination metal compound for purposes of increasing its conductivity, the metal powder selected from the group consisting of Ni, Co, Fe, Cu, Pt, Rh, In and Ir and alloys thereof, the metal powder provided in a particle size of not greater than −10 mesh (Tyler Series) for dispersing in the combination metal compound and constituting up to about 30 vol.% of the composition.

4,374,762
PROCESS FOR THE REMOVAL OF TRITIUM FROM THE PRODUCT SOLUTIONS OBTAINED BY THE PUREX PROCESS

Rainer Olinger, Hagen, and Andre van den Bossche, Werl, both of Fed. Rep. of Germany, assignors to Uhde GmbH, Dortmund, Fed. Rep. of Germany

Filed Jun. 4, 1980, Ser. No. 156,358
Claims priority, application Fed. Rep. of Germany, Jun. 10, 1979, 2929167
Int. Cl.³ C01F 13/00, 15/00
U.S. Cl. 252—631 7 Claims



1. A method for the removal of tritium from a product solution obtained in the reprocessing of irradiated nuclear fuel by the PUREX process, said method comprising the steps of subjecting a plurality of aqueous solutions of the product to a plurality of successive extractions with a water-immiscible solvent to produce a plurality of successively less contaminated solutions of the fuel in the water-immiscible solvent and a plurality of aqueous tritium extracts, separating each of the immiscible solvent solutions from its associated tritium extract, subjecting a plurality of the immiscible solvent solutions of the fuel to re-extraction to produce the aqueous solution of the fuel which is subjected to each of the next successive extractions, purifying a plurality of the aqueous tritium extracts, and using the tritium extract separated from one of the immiscible solvent solutions and purified to re-extract the next more contaminated immiscible solvent solution.

4,374,763
METHOD FOR PRODUCING GAMMA-GLOBULIN FOR USE IN INTRAVENOUS ADMINISTRATION AND METHOD FOR PRODUCING A PHARMACEUTICAL PREPARATION THEREOF

Takashi Takagi, Shiga, Japan, assignor to Morishita Pharmaceutical Co., Ltd., Osaka, Japan

Filed Aug. 28, 1980, Ser. No. 181,972
Claims priority, application Japan, Sep. 17, 1979, 54-120357; Jul. 30, 1980, 55-105618
Int. Cl.³ C07G 7/00
U.S. Cl. 260—112 B 1 Claim

1. A process for producing gamma-globulin suitable for use in intravenous administration and of an anticomplementary activity of lower than 20% ($C'H_{50}$ value) comprising, bringing Cohn's Fraction II for said gamma-globulin into suspension in an aqueous solution of a monosaccharide, disaccharide or sugar alcohol, adjusting the pH of said suspension to 7.0 to 9.0, adding dextran of an average molecular weight of 10,000 to 70,000 into said suspension to produce an aqueous 2 to 10% wt./vol. solution of dextran, and after removing the thus formed precipitate, adding ammonium sulfate to the mother liquor to precipitate said gamma-globulin.

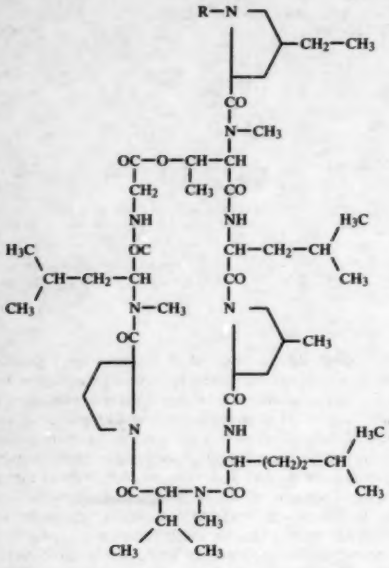
4,374,764

MACROLIDE ANTIBIOTIC

Mamoru Arai; Tatsuo Haneishi, and Mutsuo Nakajima, all of Hiromachi, Japan, assignors to Sankyo Company, Limited, Tokyo, Japan

Filed Oct. 21, 1980, Ser. No. 199,238
Claims priority, application Japan, Nov. 1, 1979, 54/141650
The portion of the term of this patent subsequent to Jun. 22, 1999, has been disclaimed.
Int. Cl.³ C07C *103/52*
U.S. Cl. 260—112.5 R 3 Claims

1. Compounds of the formula (I):



(I)

wherein R represents a hydrogen atom or an N-(α-hydroxybutyryl)-N-methylvalyl group.

4,374,765

MAMMALIAN COLLAGENASE INHIBITORS

William H. McGregor, Malvern, Pa., assignor to American Home Products Corporation, New York, N.Y.

Filed Oct. 7, 1981, Ser. No. 309,368
Int. Cl.³ C07C *103/52*; A61K *37/00*
U.S. Cl. 260—112.5 R 2 Claims

1. A compound of the formula:

R-Gly-L-Cys-Gly-L-Glu-L-Glu-NH_2

in which

R is hydrogen, alkanoyl of 2 to 6 carbon atoms, cycloalkylcarbonyl of 6 to 8 carbon atoms or alkoxycarbonyl of 2 to 6 carbon atoms;

or a pharmaceutically acceptable salt thereof.

4,374,766

COMBINED ALLANTOIN-HYDROLYZED ANIMAL PROTEIN PRODUCT AND METHOD

Eugene Puchalski, Jersey City; Frances A. Donahue, Middletown, and Richard P. Dixon, Aberdeen, all of N.J., assignors to Charles of the Ritz Group Ltd., New York, N.Y.

Filed Jun. 1, 1982, Ser. No. 383,404
Int. Cl.³ C07G *7/00*; C08H *1/06*
U.S. Cl. 260—123.7 9 Claims

1. A stable form of allantoin which remains in aqueous-alcoholic solution over extended periods of time, comprising a combined allantoin-hydrolyzed animal protein product.

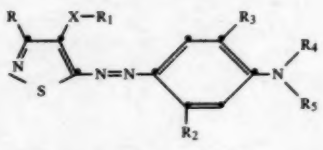
4,374,767

SUBSTITUTED ETHER OR THIOETHER ISOTHIAZOLE AZO DYES

Max A. Weaver, and Jean C. Fleischer, both of Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.

Continuation of Ser. No. 966,173, Dec. 4, 1978, abandoned. This application Aug. 11, 1980, Ser. No. 177,151
Int. Cl.³ C07C *107/04*; C09B *29/039, 29/06, 29/26*
U.S. Cl. 260—158 6 Claims

1. Azo compounds of the formula:



wherein R is lower alkyl or phenyl; X is O or S; R_1 is selected from lower alkyl, cyclohexyl, and phenyl wherein said lower alkyl is unsubstituted or substituted with 1–3 of —OH, Cl, Br, aryl, aryloxy, lower alkanoyloxy, lower alkoxy, or lower alkoxy substituted with —OH, Cl, Br, or lower alkoxy, and wherein said phenyl is unsubstituted or substituted with Cl, Br, lower alkoxy, or lower alkyl, and when X is S, R_1 is further selected from pyridyl, pryimidinyl, benzothiazolyl, benzoxazolyl, benzimidazolyl, azolyl radicals having the formula

wherein Y is an oxygen or sulfur atom and Z is an ethylenically unsaturated group of two carbon atoms or of a nitrogen and a carbon atom, wherein said azolyl radicals may be substituted with lower alkyl, phenyl, or phenyl substituted as above for R_1; R_2 is selected from hydrogen, lower alkyl, lower alkoxy, formamido, lower alkoxycarbonylamino, lower alkanoylamino, lower alkanoylamino substituted with cyano, lower alkoxy, lower alkoxycarbonyl, phenoxy, or phenyl, phenoxy, halogen substituted phenoxy, cycloalkylcarbonyl, and lower alkylsulfonyl; R_3 is H, or lower alkyl; and R_4 and R_5 are independently selected from H, alkyl of 1–8 carbons, cyclohexyl, phenyl, lower alkoxycarbonyl substituted phenyl, and lower alkyl substituted with cyclohexyl, lower alkanoyloxy, lower alkoxycarbonyl, succinimido, lower alkanoylamino, lower alkylsulfonylamino, lower alkyl sulfonyl, sulfamoyl, carbamoyl, hydroxy, pyrrolidono, phthalimido, aryl, cyano, aryloxy, lower alkoxycarbonyloxy, lower alkoxy, phenoxy, or lower alkoxyalkoxy.

4,374,768
DISPERSE DYES FROM 5-AMINO-4-HALO-3-METHYLISOTHIAZOLES

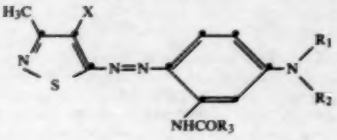
Jean C. Fleischer; Gary T. Clark, and Ronald J. Maner, all of Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.

Continuation of Ser. No. 159,422, Jun. 16, 1980, abandoned, which is a continuation of Ser. No. 970,072, Dec. 18, 1978, abandoned. This application Apr. 16, 1981, Ser. No. 254,705

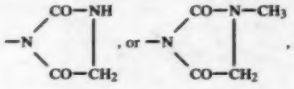
Int. Cl.³ C09B *29/22*

U.S. Cl. 260—158 **3 Claims**

1. Monoazo dyes of the general formula:



wherein R_1 and R_2 are each selected from lower alkyl, cyclohexyl, and alkyl substituted with carbamoyl, sulfamoyl, —CN, phenyl, succinimido, $—N(SO_2CH_3)CH_2C_6H_5$, lower alkoxy, lower alkoxyalkoxy, lower alkanoylamino, hydroxy substituted lower alkoxy, hydroxy, phthalimido,



and wherein only one of R_1, and R_2 can be unsubstituted alkyl; R_3 is lower alkyl, lower alkyl substituted as above, phenyl, or trifluoromethyl; and X is chlorine or bromine.

4,374,769
WATER-SOLUBLE TRIS PHENYL BISAZO DYES FOR POLYAMIDE FIBERS

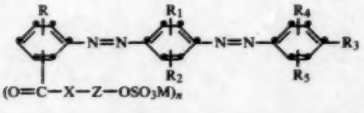
Ralph R. Giles, and Max A. Weaver, both of Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jun. 17, 1981, Ser. No. 274,599

Int. Cl.³ C09B *29/26, 29/085, 31/062;* **D06P** *3/24*

U.S. Cl. 260—187 **6 Claims**

1. A dye of the formula:



wherein X is —O—, —NH—, —N(alkyl)—, or —N(aryl)—; Z is selected from straight or branched-chain alkylene, $—C_2H_4—O—C_2H_4—$, $—C_2H_4CONHC_2H_4OC_2H_4—$, and $—C_2H_4NHC_2H_4—$; M is H, Na, K or NH_4; n is 1 or 2; R_3 is —OH, alkoxy or $—NR_8R_9$ wherein R_8 and R_9 are independently selected from H and alkyl and when either R_4 or R_5 is hydroxy or alkoxy ortho to the azo radical, R_3 is further selected from hydrogen, halogen, alkyl, and aryl; R, R_1, R_2, R_4, and R_5 are the same or different groups selected from hydrogen, halogen, hydroxyl, alkyl, aryl, alkoxy and alkanoylamino; with the proviso that when R_3 is neither —OH, alkoxy, nor $—NR_8R_9$, one of R_4 and R_5 is either hydroxy or alkoxy ortho to the azo radical; and wherein these alkyl, alkylene, alkoxy and aryl moieties are unsubstituted or substituted with one to three substituents selected from hydroxy, halogen, cyano, succinimido, cyclohexyl, alkyl-sulfonyl, alkylthio, alkanoyl, alkanoyloxy, amino, alkylamino, dialkylamino, arylamino, furyl, alkoxy, phenoxy, alkanoylamino, sulfamoyl, alkylsulfamoyl, dialkylsulfamoyl, phenyl and phenyl substituted with alkyl, alkoxy, halogen, alkanoylamino, cyano or alkoxycarbonyl, $—COOR^6$ wherein R^6 is selected from alkyl and alkyl substituted with halogen, hydroxy, phenoxy, aryl, cyano, cycloalkyl, alkylsulfonyl, alkylthio, alkanoyloxy or alkoxy, and $OCOR^7$ wherein R^7 is alkyl.

4,374,770
PROCESS FOR PREPARATION OF AROMATIC ACID CHLORIDES

John A. Hyatt, and David S. Kashdan, both of Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Oct. 8, 1981, Ser. No. 309,664

Int. Cl.³ C07C *107/06, 51/58*

U.S. Cl. 260—207.1 **20 Claims**

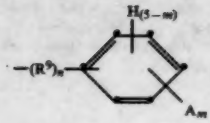
1. Process for preparation of a compound having the formula

which comprises reacting an aromatic aldehyde having the formula

with sulfuryl chloride, wherein R^1 is selected from the group consisting of hydrogen and alkyl of up to 8 carbon atoms, $—(C_6H_4)—CH_3$, —CHO and Z, wherein Z is an electron withdrawing group selected from the group consisting of —CN, —COCl, $—SO_2(C_6H_5)$, $—SO(C_6H_5)$, $—N{=}N—C_6H_5$ and $—CO_2R^7$ wherein R^7 is alkyl of up to 8 carbon atoms; R^2 is selected from the group consisting of hydrogen, alkyl of up to 8 carbon atoms, $—(C_6H_4)—CH_3$, —COCl and Z; the reaction being conducted in the presence of a catalytic amount of a compound having the formula

wherein Y is selected from the group consisting of P, P=O, and

wherein X is selected from the group consisting of chlorine and bromine; R^8 is selected from the group consisting of chlorine, bromine and M; and M, R^4, R^5 and R^6 are independently selected from the group consisting of alkyl and haloalkyl



wherein R^9 is an alkylene group containing up to 8 carbon atoms, n is an integer from 0 to 1; A is selected from the group consisting of chlorine, bromine and alkyl and haloalkyl containing up to 8 carbon atoms, and m is an integer from 0 to 5.

4,374,771

BLOCKED ISOCYANATE

Balwant Singh, and Robert W. Novak, both of Stamford, Conn., assignors to American Cyanamid Company, Stamford, Conn.

Filed Mar. 8, 1982, Ser. No. 355,821

Int. Cl.³ C07D *403/12*

U.S. Cl. 260—239.3 R **3 Claims**

1. N,N'-methylenebis (hexahydro-2-oxo-1H-azepine-1-carboxamide).

4,374,772

PROCESS FOR THE PREPARATION OF N-FORMIMIDOYL THIENAMYCIN AND REAGENTS THEREFOR

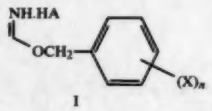
George G. Hazen, Westfield; Ralph P. Volante, East Windsor, and Kenneth E. Wilson, Westfield, all of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

Filed Mar. 19, 1981, Ser. No. 244,934

Int. Cl.³ C07D *487/04*

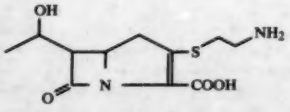
U.S. Cl. 260—245.2 T **1 Claim**

1. A process for preparing N-formimidoyl thienamycin comprising reacting:



I

with



in water at a pH from 7 to 8.5; wherein A is an anion; X is independently selected from the group consisting of nitro, halo (chloro, bromo, fluoro, and iodo), loweralkyl having from one to six carbon atoms, phenyl, and phenylalkyl having from 7–12 carbon atoms, and —COOR, wherein R is hydrogen or loweralkyl having from one to six carbon atoms; and n is 0, 1 or 2.

4,374,773

TRIAZOLO-BENZODIAZEPINE DERIVATIVES

Quirico Branca, Birsfelden; Albert E. Fischli, Rieben, both of Switzerland, and Andre Szente, Dee Why, Australia, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

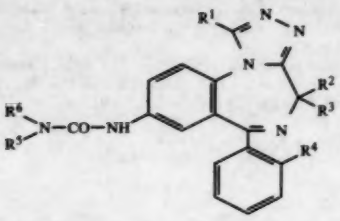
Filed Jan. 16, 1981, Ser. No. 225,747

Claims priority, application Switzerland, Feb. 8, 1980, 1038/80

Int. Cl.³ A61K *31/55*; C07D *487/04*

U.S. Cl. 260—245.5 **15 Claims**

1. A compound of the formula

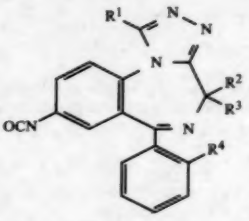


I

wherein R^1 is a hydrogen atom or a lower alkyl group, R^2 and R^3 each are a hydrogen atom or a lower alkyl group, R^4 is a halogen atom and either R^5 is a hydrogen atom or a lower alkyl group and R^6 is a lower alkyl or lower hydroxyalkyl group or R^5 and R^6 together with the nitrogen atom to which they are attached are a 3-membered to 7-membered heterocycle selected from the group consisting of aziridine, pyrrolidone and piperidine,

and pharmaceutically acceptable acid addition salts thereof.

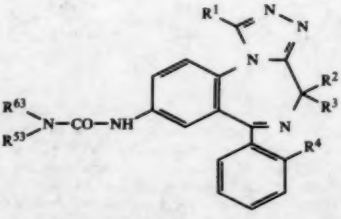
13. A compound of the formula



II

wherein R^1 is a hydrogen atom or a lower alkyl group, R^2 and R^3 each are a hydrogen atom or a lower alkyl group and R^4 is a halogen atom.

14. A compound of the formula



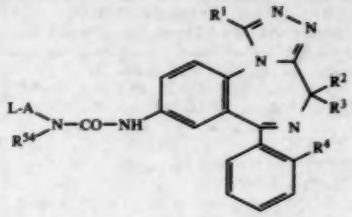
VII

wherein R^1 is a hydrogen atom or a lower alkyl group, R^2 and R^3 each are a hydrogen atom or a lower alkyl group, R^4 is a halogen atom and either R^{53} is a protecting group and R^{63} is a lower alkyl group or a group of the formula

—A—O—Y VIII

in which A is a lower alkylene group and Y is a protecting group, or R^{53} is a hydrogen atom or a lower alkyl group and R^{63} is as above.

15. A compound of the formula



IX

wherein R^1 is a hydrogen atom or a lower alkyl group, R^2 and R^3 each are a hydrogen atom or a lower alkyl group, R^4 is a halogen atom, A is a lower alkylene group, R^{5A} is a hydrogen atom or a lower alkyl group and L is a leaving group.

4,374,774

MITOMYCINS

Masaji Kasai, Fujisawa; Motomichi Kono, and Kunikatsu Shirahata, both of Machida, all of Japan, assignors to Kyowa Hakko Kogyo Co., Ltd., Tokyo, Japan

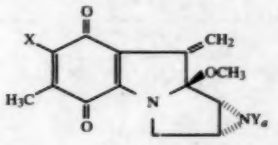
Filed Mar. 3, 1980, Ser. No. 126,346

Claims priority, application Japan, Mar. 13, 1979, 54/28250; Jun. 28, 1979, 54/80809

Int. Cl.³ C07D 487/02

U.S. Cl. 548—422 **5 Claims**

1. A compound of the formula



wherein Ya is a hydrogen atom or a methyl group and when Ya is a hydrogen atom, X is an amino group, an hydroxy group or an alkoxy group having 1–4 carbon atoms and when Ya is a methyl group, X is an hydroxy group.

4,374,775

PROCESS FOR PREPARING VITAMIN K

Karl H. Dötz, Vaterstetten, Fed. Rep. of Germany, assignor to Hoffmann-La Roche Inc., Nutley, N.J.

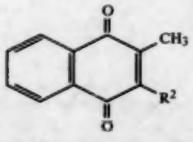
Division of Ser. No. 127,002, Mar. 4, 1980, Pat. No. 4,320,065. This application Nov. 9, 1981, Ser. No. 319,355

Claims priority, application Fed. Rep. of Germany, Mar. 8, 1979, 2909091; Switzerland, Jan. 15, 1980, 306/80

Int. Cl.³ C07C 97/18

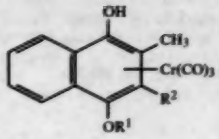
U.S. Cl. 260—396 K **3 Claims**

1. The process of producing a compound of the formula



IV

wherein R^2 is dimethylallyl, geranyl, farnesyl or an analogous isoprenoid terpenyl residue or the phytyl residue comprising oxidizing a compound of the formula:



III

wherein R^1 is lower alkyl, acyl or benzyl and R^2 is as above with an oxidizing agent.

4,374,776

STEROL CONCENTRATES, THE PREPARATION THEREOF, AND THEIR USE IN THE TRANSFORMATION OF STEROLS BY FERMENTATION

Alfred Struve, Hilden; Frank F. Hill, Mettmann-Obschwarzbach, and Joachim Schindler, Hilden, all of Fed. Rep. of Germany, assignors to Henkel Kommanditgesellschaft auf Aktien, Düsseldorf-Holthausen, Fed. Rep. of Germany

Filed Sep. 2, 1980, Ser. No. 183,622

Claims priority, application Fed. Rep. of Germany, Sep. 7, 1979, 2936125

Int. Cl.³ C07J 9/00

U.S. Cl. 260—397.25 **18 Claims**

1. A process for the preparation of a concentrate containing sterol compounds of natural origin, which concentrate is suitable as a starting material for the transformation of sterol compounds by fermentation, which comprises the steps of:

(a) transesterifying sterol-containing distillation residues from the processing of natural fats and/or oils with a lower alcohol; and

(b) subjecting the product of step (a) to molecular distillation to produce a main fraction having a content of up to about 50 percent by weight of sterol compounds.

4,374,777

SYNTHESIS OF HYDROCARBON SOLUBLE VANADIUM CATALYST

Ronald A. Henry, China Lake, Calif., and Arnold Adicoff, Burke, Va., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Apr. 9, 1981, Ser. No. 252,712

Int. Cl.³ C11C 1/00

U.S. Cl. 260—414 **1 Claim**

1. A process for the production of vanadium trineodecanoate to be used with a promoter as a catalyst comprising the steps of:

reducing vanadium pentoxide in an acidic solution of formic and hydrochloric acids to form a vanadium (III) solution;

heating said vanadium (III) solution under nitrogen for a period of time at 80°–90° C.;

adding neodecanoic acid, triethyl phosphate, paraformaldehyde and xylene to said heated vanadium (III) solution to form a heterogeneous solution;

heating said heterogeneous solution rapidly to reflux with stirring;

azeotropically distilling said heterogeneous solution under nitrogen to remove the aqueous phase; and

recovering said vanadium trineodecanoate in a xylene solution.

4,374,778

MONOALKYLFLUOROTIN COMPOUNDS

Hans Plum, Hamm, and Ulrich Schroeer, Kamen-Methler, both of Fed. Rep. of Germany, assignors to Schering Aktiengesellschaft, Berlin and Bergkamen, Fed. Rep. of Germany

Filed Jul. 6, 1981, Ser. No. 280,300

Claims priority, application Fed. Rep. of Germany, Aug. 1, 1980, 3029174

Int. Cl.³ C07F 7/22

U.S. Cl. 260—429.7 9 Claims

1. A monoalkylfluorotin compound of the formula

wherein R is alkyl having 1 to 12 carbon atoms, X taken alone is fluorine or carboxylate, Y taken alone is chlorine, carboxylate,

or wherein X and Y, taken together, are oxygen.

4,374,779

NITROSOAMINO-ACTONITRILES

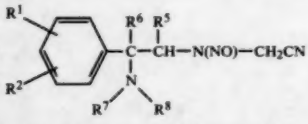
Reinhardt P. Stein, Audubon, Pa., assignor to American Home Products Corporation, New York, N.Y.

Division of Ser. No. 264,892, May 18, 1981, Pat. No. 4,324,897, which is a continuation-in-part of Ser. No. 193,043, Oct. 2, 1980, Pat. No. 4,289,885. This application Nov. 16, 1981, Ser. No. 321,953

Int. Cl.³ C07C 121/78

U.S. Cl. 260—465 E 3 Claims

1. A compound of the formula:



in which

R^1 and R^2 are, independently, hydrogen, alkyl of 1 to 6 carbon atoms, alkoxy of 1 to 6 carbon atoms, halo, perfluoroalkyl of 1 to 3 carbon atoms, nitro, alkanoyl of 2 to 4 carbon atoms, or alkoxycarbonyl of 2 to 4 carbon atoms;

R^5 and R^6 are, independently, hydrogen or methyl;

R^7 and R^8 are, independently, alkyl of 1 to 4 carbon atoms, or when taken with the nitrogen atom to which they are attached, form a piperidinyl, pyrolidinyl, morpholinyl, N-alkyl piperazinyl in which the alkyl group contains from 1 to 6 carbon atoms or N-phenylpiperazinyl group;

or a pharmaceutically acceptable salt thereof.

4,374,780

DI-2,4,4'-TRIMETHYLPENTYLPHOSPHINIC ACID AND ITS PREPARATION

Allan J. Robertson, Niagara, Canada, assignor to American Cyanamid Company, Stamford, Conn.

Filed May 14, 1981, Ser. No. 263,529

Int. Cl.³ C07F 9/30

U.S. Cl. 260—502.4 R 1 Claim

1. The compound di-2,4,4'-trimethylpentylphosphinic acid.

4,374,781

ALKYLATED PHOSPHAZENE OLIGOMERS AND METHOD OF PREPARATION

Harry R. Allcock, and Paul J. Harris, both of State College, Pa., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Division of Ser. No. 78,974, Sep. 25, 1979, Pat. No. 4,258,172. This application Nov. 3, 1980, Ser. No. 203,202

Int. Cl.³ C07F 9/65

U.S. Cl. 260—543 PN 5 Claims

1. A phosphazene oligomer having the formula: $(NP(X_2))_nNPRH$, wherein X represents chlorine or bromine, R represents a linear or branched alkyl, and n represents an integer from 2 to 8.

4,374,782

SYNTHESIS OF TRIFLUOROACETYL FLUORIDE

Louis G. Anello, Hamburg; Michael Van Der Puy, Cheektowaga; Martin A. Robinson, East Amherst, and Richard E. Eibeck, Orchard Park, all of N.Y., assignors to Allied Corporation, Morristown, N.J.

Filed Jun. 18, 1981, Ser. No. 275,009

Int. Cl.³ C07C 51/58

U.S. Cl. 260—544 F 10 Claims

1. A process for the preparation of trifluoroacetyl fluoride, which comprises reacting, in the liquid phase under substantially dry conditions and at elevated temperatures, hexafluorothioacetone dimer in an aprotic solvent containing at least a catalytic amount of an alkali metal fluoride with an oxidizing agent selected from the group consisting of oxides of Pb, Sn, Ni, Co and Fe and $M_2S_2O_8$ wherein M is an alkali metal.

4,374,783

O,O-DIALKYL-S-(2,3,4-TRICHLORO)BUTYL THIOPHOSPHATE

Seong T. Hwang, 6225 Garretson St., Burke, Va. 22015

Filed May 8, 1981, Ser. No. 261,888

Int. Cl.³ C07F 9/165

U.S. Cl. 260—963 2 Claims

1. O,O dimethyl S-(2,3,4 trichloro) butyl phosphorothioate.

2. O,O diethyl S-(2,3,4 trichloro) butyl phosphorothioate.

4,374,784

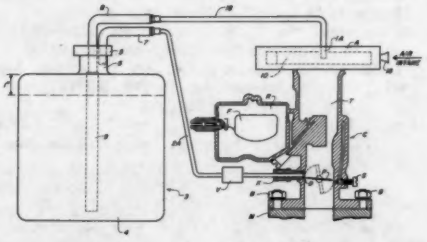
AIR AND MOISTURE INDUCTION SYSTEM

Calvin Kalishman, 5 Margaret Rd., Stoneham, Mass. 02180

Continuation of Ser. No. 213,819, Dec. 8, 1980, Pat. No. 4,313,740. This application Dec. 12, 1981, Ser. No. 233,991

Int. Cl.³ F02M 25/00

U.S. Cl. 261—18 A 7 Claims



1. A system for increasing gasoline mileage and reducing pollutants in the emissions from a vehicle engine having combustion means including an engine carburetor, engine manifold and air filter associated with the carburetor, said system comprising;

means for securing the engine carburetor to the vehicle intake manifold in a position for downdraft operation,

a tank for holding a quantity of a liquid and having air inlet means and air outlet means,

a first coupling line coupled from the air filter receiving air under pressure for coupling directly to the air inlet means of the tank, whereupon the air passes through the liquid in the tank to provide liquid saturated air in the tank,

said tank having the liquid therein occupying less than the entire volume of the tank to thus leave a top air space over the liquid in which the liquid saturated air is formed,

a second coupling line coupling to the carburetor throat above but close to the throttle plate in the closed position thereof but within the radius of the throttle plate in the open position thereof, whereby when the plate is closed as at idle substantially no flow occurs via the second coupling line but upon opening the flow commences through the throat,

and a metering valve in said second coupling line for controlling the amount of saturated air feed to the throat of the carburetor,

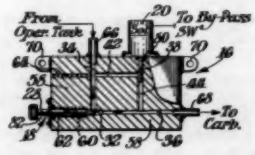
said metering valve being of small orifice diameter having a maximum on the order of 0.060 inch wherein the air filter provides filtered air via the first coupling line to the tank, said air filter comprising a plurality of replacable cartridge filters, said filters each being of uniform density with different ones thereof having different porosity with the more dense filter disposed closer to an air inlet and the less dense filter disposed remote from the air inlet with said dense to less dense filters extending circumferentially whereby uniform air dispersion occurs through the filters.

4,374,785

METERING DEVICE FOR FUEL CONTROL SYSTEM

Charles E. Wyatt, Kennedyville, Md., assignor to Miletech, Inc., Greenville, Del.

Filed Jan. 21, 1981, Ser. No. 226,865
Int. Cl.³ F02M 7/06
U.S. Cl. 261—51 **5 Claims**



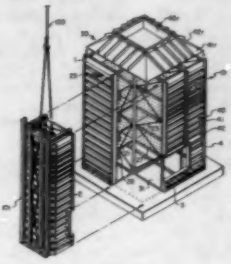
1. A metering device, in combination therewith, a fuel control system for use in a vehicle having a fuel line for supplying fuel to a carburetor, said metering device comprising a mounting block, a first pair of passageways extending into said block and exposed at one face of said block, said passageways terminating in closed ends within said block, a second pair of passageways extending into said block and intersecting said first pair of passageways, a main meter valve in one of said second pair of passageways with one of said pair of passageways being exposed from said block to comprise an outlet passageway, one of said first pair of passageways comprising an inlet passageway and the other of said first pair of passageways comprising a by-pass passageway, the other of said second pair of passageways comprising a by-pass branch interconnecting said inlet passageway and said by-pass passageway, a by-pass valve in said by-pass passageway for selectively closing flow communication between said inlet passageway and said by-pass passageway, an upstream portion of said fuel line being connected in flow communication with said inlet passageway, and a downstream portion of said fuelline connected in flow communication with said outlet passageway.

4,374,786

UNITIZED SCRUBBER TOWER

Robert W. McClain, Dallas, Tex., assignor to Glitsch, Inc., Dallas, Tex.

Filed Aug. 5, 1981, Ser. No. 290,148
Int. Cl.³ B01D 47/12; E04B 1/343; B66C 1/32, 1/34
U.S. Cl. 261—113 **9 Claims**



1. A rectangular scrubber tower for removing toxic gases and pollutants from relative high volume industrial exhausts; said tower being principally exteriorly supported at its perimeter, having means for mixing a scrubbing liquid with the exhaust; said tower comprising:

a. a plurality of prefabricated constituent subunits, a plurality of which are perimeter subunits, each said perimeter subunit comprising:

(1) a perimeter wall section comprising:

i. a corrosion resistant plate;

ii. a rib framework attached to said plate whereby said plate is exteriorly reinforced; and

iii. a plurality of horizontal support members attached to the interior of said plate;

(2) at least one interior vertical support; and

(3) additional substantially horizontal supports connecting said vertical support to said perimeter wall section;

b. a foundation upon which said tower is supported;

c. means for securing said constituent subunits to said foundation;

d. means to connect said constituent subunits to each other whereby a single functional scrubber tower is assembled from a plurality of said constituent subunits; said connection means comprising;

(1) means for interconnecting the rib framework of adjacent perimeter constituent subunits; and

(2) means for sealing the connection of adjacent perimeter wall sections;

e. an inlet through at least one of said perimeter wall sections whereby the exhaust bearing toxic gases and pollutants enters said scrubber tower;

f. a roof connected to an upper edge of said perimeter wall section of at least one of said perimeter subunits having a chimney whereby cleansed exhaust is released from the scrubber tower; and

g. a floor connected to each said perimeter wall section of at least one of said perimeter subunits between said foundation and the lowermost of said trays.

6. A scrubber tower for removing toxic gases and pollutants from relative high volume industrial exhausts; said tower being principally exteriorly supported at its perimeter, having means for mixing a scrubbing liquid with the exhaust; said tower comprising:

a. a plurality of prefabricated constituent subunits, a plurality of which are perimeter subunits, each said perimeter subunit comprising:

(1) a perimeter wall section comprising:

i. a corrosion resistant plate;

ii. a rib framework attached to said plate whereby said plate is exteriorly reinforced; and

iii. a plurality of horizontal support members attached to the interior of said plate;

(2) at least on interior vertical support; and

(3) additional substantially horizontal supports connecting said vertical support to said perimeter wall section;

b. a foundation upon which said tower is supported;

c. means for securing said constituent subunits to said foundation;

d. means to connect said constituent subunits to each other whereby a single functional scrubber tower is assembled from a plurality of said constituent subunits; said connection means comprising;

(1) means for interconnecting the rib framework of adjacent perimeter constituent subunits; and

(2) means for sealing the connection of adjacent perimeter wall sections;

e. an inlet through at least one of said perimeter wall sections whereby the exhaust bearing toxic gases and pollutants enters said scrubber tower;

f. a roof connected to an upper edge of said perimeter wall section of at least one of said perimeter subunits having a chimney whereby cleansed exhaust is released from the scrubber tower; and

g. a floor connected to each said perimeter wall section of at least one of said perimeter subunits.

4,374,787
PRESSING CERAMIC POWDERS

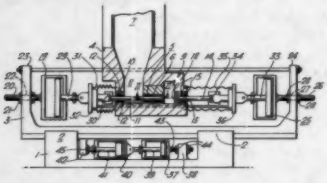
Roy Stewart, Blackpool, England, assignor to British Nuclear Fuels Limited, Warrington, England

Filed Aug. 6, 1980, Ser. No. 175,864

Claims priority, application United Kingdom, Aug. 10, 1979, 7928000

Int. Cl.³ B30B *5/02, 11/02*

U.S. Cl. 264—0.5 **7 Claims**



1. An improved press apparatus for forming bodies from ceramic powder having in combination a rigid die and means for applying mechanical pressure to powder within and contacting the die at least at one end of the die characterised in that the die is at least in part of fluid permeable material and means are provided for exerting hydrostatic pressure through a fluid medium permeating the die and contacting the powder while applying the mechanical pressure.

4,374,788
PROCESS FOR TREATMENT OF OLEFIN POLYMER FIBRILS

William H. Gonzales, Houston, Tex., assignor to Gulf Oil Corporation, Pittsburgh, Pa.

Filed Feb. 28, 1979, Ser. No. 16,239

Int. Cl.³ B29C *23/00*

U.S. Cl. 264—5 **9 Claims**

1. In a process in which olefin polymer fibrils are prepared by:

a. Cooling a hot olefin polymer solution under conditions of high shear to prepare fibrils,

b. Recovering the precipitated fibrils,

c. Refining the fibrils in the presence of a low molecular weight oxygen containing liquid, and

d. Treating the fibrils with an aqueous solution of polyvinyl alcohol to sorb at least 1 weight % of polyvinyl alcohol on the fibrils,

the improvement which consists of carrying out the refining step (c) at a subambient temperature not higher than about 10° C.

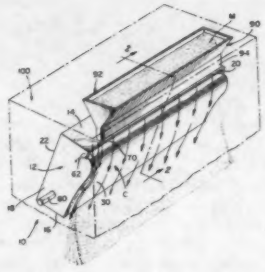
4,374,789
METALLIC PARTICLE GENERATION DEVICE

Earl N. Stuck, Wareham; Keith D. Pigney, Taunton, and Howard Gifford, Westport, all of Mass., assignors to Teledyne Industries, Inc., Los Angeles, Calif.

Filed Sep. 8, 1981, Ser. No. 300,224

Int. Cl.³ B01J *2/04*

U.S. Cl. 264—12 **6 Claims**



1. A process for producing metallic particles comprising steps of:

defining a Coanda surface;

flowing a first fluid along the Coanda surface;

locating a second fluid adjacent the Coanda surface, said first and second fluids being selected and located with respect to each other so that the flow of said first fluid influences said second fluid to flow in a direction which intersects said first fluid;

flowing a molten metal adjacent the Coanda surface;

locating the molten metal flow so that said molten metal flow is located between said first and second fluids so that said molten metal postpones but does not prevent the intersection of said first and second fluids; and

flowing said fluids and said molten metal to an intersection position whereat said first and second fluids intersect, said fluids and said molten metal intermixing thereby breaking up said molten metal flow into metallic particles.

4,374,790
METHOD AND APPARATUS FOR PUMPING CONCRETE TO FORM STRUCTURE AT ELEVATED HEIGHTS

Joseph L. McGowan, Harpenden, England, assignor to Marley Company, Mission, Kans.

Filed Jul. 8, 1980, Ser. No. 166,988

Int. Cl.³ E04B *11/16;* **E04G** *21/04*

U.S. Cl. 264—32 **9 Claims**

6. In a method of building a circular concrete structure using an annular form system into which concrete mix is poured as successive annuluses and the system is periodically raised in height comprising the steps of:

locating the annular form system in disposition for receipt of concrete mix in the open upper part thereof;

establishing an upright flow path of height related to the elevation of the form system and extending along a line in the central area of said form system;

providing a normally elevated essentially lateral flow path for the concrete mix and connected to the upright flow path;

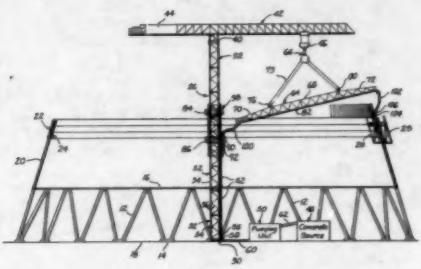
supporting the lateral flow path from a level above the same and in a manner such that the lateral path is maintained in a vertically inclined disposition with the extremity thereof proximal to the upright flow path lower than the opposite outboard extremity of the lateral flow path,

said lateral flow path being of sufficient length to allow concrete mix flowing therealong to readily be directed into an adjacent area of the form system;

delivering concrete mix to the upright flow path on a substantially continuous basis for flow to the lateral path and thereafter to the form system;

diverting concrete mix from the outboard end of the lateral flow path into the annular form system; and

maneuvering the support for the lateral flow path while maintaining the inclination of the latter relative to the horizontal through a first arc in one angular direction



without changing the horizontal position of the upright flow path, of sufficient magnitude to allow diversion of concrete mix from said lateral path into at least approximately one-half of the circumferential extent of the annular form system and thence through a second arc in the opposite angular direction of sufficient extent to permit diversion of concrete mix from said lateral flow path into the remaining circumference of the annular form system and again without change in horizontal disposition of the upright flow path,

said lateral flow path being pivoted about an upright axis therethrough during swinging of the support therefor in opposite directions as necessary to ensure that concrete mix is directed into the form system throughout the entire circumferential extent thereof without interruption in supply of the mix.

4,374,791

PROCESS FOR PREPARING PARTICLEBOARD

William J. Farrissey, Northford; Alexander McLaughlin, Meriden, and Douglas P. Waszeciak, Hamden, all of Conn., assignors to The Upjohn Company, Kalamazoo, Mich.

Filed Sep. 28, 1981, Ser. No. 306,199

Int. Cl.³ B28B 7/04

U.S. Cl. 264—39 **8 Claims**

1. In a process for the preparation of particle board wherein particles of material capable of being compacted are contacted with a polyisocyanate binder containing an internal release agent and the treated particles are subsequently formed into boards by the application of heat and pressure utilizing metal caul plates or platens, the imporvement which comprises enhancing the release of the finished particle board from the metallic surfaces which come into contact with said particle board during said application of heat and pressure, by precoating said metallic surfaces with a layer of polytetrafluoroethylene.

4,374,792

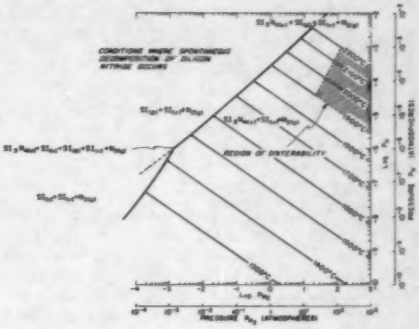
SINTERING OF SILICON NITRIDE WITH BE ADDITIVE

Svante Prochazka, Ballston Lake, and Charles D. Greskovich, Schenectady, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Continuation of Ser. No. 65,120, Aug. 9, 1979, abandoned. This application Aug. 27, 1981, Ser. No. 296,676

Int. Cl.³ C04B 35/58

U.S. Cl. 264—65 **2 Claims**



1. A method of producing a pre-shaped polycrystalline sintered body consisting of more than 99% by volume of β-silicon nitride containing oxygen and beryllium in solid solution with less than 1% by volume of said body being an amorphous glassy phase which consists essentially of providing a silicon nitride powder containing less than about 0.5% by weight metallic cation impurities based on the total weight of said silicon nitride powder, providing at least a significantly homogeneous dispersion having an average particle size which is submicron and which consists of said silicon nitride powder, oxygen and an additive consisting of a beryllium additive, said beryllium additive being selected from the group consisting of beryllium, beryllium oxide, beryllium carbide, beryllium fluoride, beryllium nitride, beryllium silicon nitride and mixtures thereof, said beryllium additive being used in an amount wherein the beryllium component is equivalent to from about 0.1% by weight to about 2% by weight of elemental beryllium based on the amount of silicon nitride, shaping said dispersion into a compact, said compact containing oxygen in an amount ranging from about 1.4% by weight to about 7% by weight of said silicon nitride, said compact containing increasing amounts of said oxygen with increasing amounts of said beryllium component, said compact containing about 7% by weight oxygen for an equivalent amount of said elemental beryllium of about 2% by weight, and sintering said compact at a temperature ranging from about 1900° C. to about 2200° C. in a sintering atmosphere of nitrogen, said nitrogen being at a superatmospheric pressure which at said sintering temperatures prevents significant thermal decomposition of said silicon nitride and produces a sintered body with a density of at least about 80% of the theoretical density of silicon nitride, the minimum pressure of said nitrogen ranging from about 10 atmospheres at a sintering temperature of about 1900° C. up to a pressure of about 65 atmospheres at a sintering temperature of about 2200° C. said compact being sintered within a gas permeable enclosure.

4,374,793

METHOD OF PRODUCING DENSE SINTERED SILICON CARBIDE BODY FROM POLYCARBOSILANE

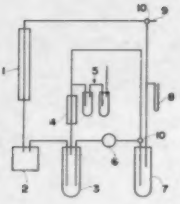
Kazunori Kogs; Saburo Nagano; Shinichiro Mizuta, and Masayoshi Nakayama, all of Kyoto, Japan, assignors to Kyoto Ceramic Kabushiki Kaisha, Japan

Filed Jan. 27, 1978, Ser. No. 873,150

Claims priority, application Japan, Jan. 27, 1977, 52-8445; Feb. 16, 1977, 52-16544

Int. Cl.³ C04B 35/58

U.S. Cl. 264—65 22 Claims



1. A method of producing a dense sintered silicon carbide body from polycarbosilane, which comprises the steps of:

(a) polymerizing an organosilicon compound to which has been added a sintering aid so as to form a polycarbosilane containing said sintering aid, said polycarbosilane being insoluble in organic solvents and having a melting or softening temperature which is higher than its thermal decomposition temperature;

(b) forming said polycarbosilane into powder;

(c) thermally decomposing said powder at 600° to 2200° in a nonoxidizing atmosphere to obtain silicon carbide containing said sintering aid;

(d) molding said silicon carbide powder; and

(e) sintering the molded body formed in step (d) in a nonoxidizing atmosphere thereby forming a dense, sintered silicon carbide body.

4,374,794

PROCESS FOR THE PREPARATION OF A LIQUID-ABSORBING AND SHOCK-ABSORBING MATERIAL

Cornelis J. M. Kok, Rhijnvis Feithstraat 44, Amsterdam, Netherlands 1054 VA

Filed Mar. 26, 1981, Ser. No. 248,011

Claims priority, application Netherlands, May 2, 1980, 80/02562

Int. Cl.³ B01J 2/20

U.S. Cl. 264—122 8 Claims

1. A process for the preparation of liquid absorbing and shock absorbing pellets comprising the steps of:

obtaining an aqueous suspension of fibers derived from waste sludge and consisting substantially of cellulose;

adding an inorganic filler to said aqueous suspension in an amount sufficient to adjust the composition of said aqueous suspension to have 60 through 80 percent weight of fibers and 40 through 20 percent weight of filler calculated on a dry basis;

partially dewatering said aqueous suspension to form a semi-dry mass having a water content of 40 to 80 percent by weight;

extruding said semi-dry mass through a die sized to form said mass into plural pellets; and

drying said plural pellets to adjust the composition of said plural pellets to have the bulk density of 150 to 400 $Kg/_M3$ and a water content of 0.5 to 10 percent by weight.

4,374,795

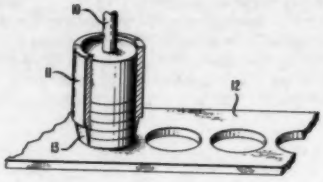
PRODUCTION OF MOLD CHARGE OF ELASTOMERIC MATERIAL CONTAINING MAGNETIC OXIDE FILLER

John P. Keilp, Secaucus; Warren F. Moore, South Plainfield, and Victor Sirbu, Hopatcong, all of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Sep. 11, 1980, Ser. No. 186,195

Int. Cl.³ B29C 17/14

U.S. Cl. 264—152 4 Claims



1. A method of producing a mold charge from an elastomeric molding material comprising the steps of:

(1) applying a compression force to a piece of said material to flatten said material and drive out entrapped air and gas therefrom,

(2) applying a shearing force to said material to shape said material into the desired cross-sectional outline,

(3) drawing another piece of said material under said prior piece and repeating steps (1) and (2), and

(4) building up said material by repeating steps (1) through (3) until the desired air- and gas-free mold charge thickness is obtained.

4,374,796

METHOD FOR LOADING COSMETIC MATERIAL INTO HOLLOW SPACE

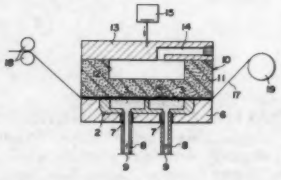
Hirotake Ogasawara, Funabashi; Yoshiharu Hatakeyama, and Mitsuo Ishiguro, both of Tokyo, all of Japan, assignors to Shiseido Company, Ltd. and Yoshida Industry Co., Ltd., both of Tokyo, Japan

Filed Nov. 5, 1980, Ser. No. 204,255

Claims priority, application Japan, Feb. 18, 1980, 55-17935; Feb. 22, 1980, 55-20560; Jul. 10, 1980, 55-93276

Int. Cl.³ B29J 5/00

U.S. Cl. 264—101 11 Claims



1. A method of molding a cosmetic material, said method comprising:

(a) preparing a fluent mixture of cosmetic material by mixing powder cosmetic material with a binder and a solvent;

(b) providing a mold structure having therein a mold cavity partially defined by a porous absorbing material and partially defined by a casing structure;

(c) injecting said mixture of cosmetic material under a predetermined pressure into said mold cavity and filling said mold cavity;

(d) maintaining said pressure for a time period after said mold cavity is filled with said mixture of cosmetic material;

(e) absorbing said solvent from said mixture of cosmetic

material into said porous absorbing material and thereby causing a bonding of said powder cosmetic material in a solid molded shape; and

(f) separating said porous absorbing material from said molded cosmetic material and from said casing structure, thereby retaining said molded cosmetic material in said structure.

4,374,797

PROCESS FOR THE PRODUCTION OF HIGH STRENGTH YARNS BY SPIN-STRETCHING AND YARNS PRODUCED BY THE PROCESS, ESPECIALLY FROM POLYAMIDE-6 AND POLYESTER FILAMENTS

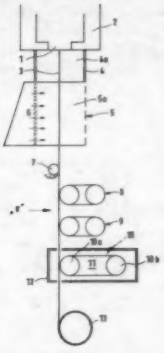
Günter Koschinek, Dietzenbach, and Dietmar Wandel, Hanau, both of Fed. Rep. of Germany, assignors to Davy McKee Aktiengesellschaft, Fed. Rep. of Germany

Filed Jul. 9, 1981, Ser. No. 281,595

Claims priority, application Fed. Rep. of Germany, Jul. 12, 1980, 3026451

Int. Cl.³ D01D 5/16

U.S. Cl. 264—210.3 12 Claims



1. An improved process for the production of high-tenacity technical-grade yarns of polyamide and polyester, having a low reference elongation, by spin-drawing in which filaments extruded from a spinneret are cooled in a cooling zone by being exposed to a stream of air, said filaments being passed over a preparation device and then passed directly over a plurality of sets of rolls, said plurality of sets of rolls forming roll systems, said filaments being drawn between at least two sets of rolls in at least one draw field, said filaments being subjected to a temperature of greater than or equal to 160° C. on at least one set of rolls and subsequently being passed over a set of let-down rolls, constituting a let-down roll system, immediately prior to being wound up at a windup speed of greater than or equal to 2,200 m/min., the improvement comprising:

(a) heating a set of rolls, said set of rolls being positioned in advance of a minimum of one draw zone, said set of rolls being heated to a constant temperature, said temperature being in a range of (T_G−20° C.) to (T_G+65° C.), wherein T_G is the temperature of the glass transition point, said filaments being drawn over said set of rolls without the use of additional stationary draw means;

(b) maintaining a set of rolls at a temperature in excess of 110° C., said set of rolls being positioned following a minimum of one draw zone, said yarn having a tension of not less than 0.2 g/dtex upon leaving said roll system;

(c) permitting said yarn to remain in said let-down roll system for a residence time, said residence time being selected to be at least 0.2 sec.;

(d) maintaining said windup speed of said yarn at a speed not less than 2.5% less than the peripheral speed of said let-down roll system; and,

(e) adjusting the temperature of said let-down roll system to a temperature of less than or equal to 60° C.

4,374,798

PRODUCTION OF PLASTIC MESH STRUCTURE

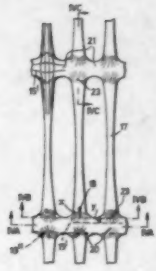
Frank B. Mercer, Blackburn, England, assignor to P.L.G. Research, Blackburn, England

Continuation-in-part of Ser. No. 82,523, Oct. 9, 1979, abandoned. This application Oct. 8, 1980, Ser. No. 195,189

Claims priority, application United Kingdom, Oct. 16, 1978, 40641/78; May 25, 1979, 7918291

Int. Cl.³ B29C 17/02

U.S. Cl. 264—288.8 21 Claims



1. A method of producing a plastics material mesh structure, comprising:

providing a substantially uniplanar plastics starting material having a thickness of not less than 0.75 mm and defining a pattern of holes or depressions whose centres lie on a notional, substantially square or rectangular grid of rows or columns; and

stretching the starting material in a direction substantially parallel to the columns to stretch, into orientated strands, zones between adjacent holes or depressions of each row, the strands being interconnected by a set of substantially parallel bars generally at right angles to the strands; the stretching being effected to such an extent that a notional point which, on the starting material, lay on the notional straight line which is parallel to the rows and is tangential to respective holes or depressions, moves into the corresponding strand so that, on the mesh structure, the point is substantially spaced from the corresponding notional straight line which is parallel to the rows of mesh openings and is tangential to respective mesh openings until molecular orientation of the plastics starting material is effected in at least a portion of the zone of each bar lying between the notional straight lines drawn tangentially to adjacent rows of holes or depressions; the mid-point of the zone of the bar which interconnects the ends of aligned strands being substantially thicker than the mid-point of either of the strands interconnected by the zone.

4,374,799

METHOD FOR CASTING PARTS MADE OF FUSED CERAMIC MATERIAL

Jacques le Clerc de Bussy, Atelier de la Chaussee, Route de Gaillefontaine, 76390 Aumale, France

Filed Jun. 17, 1980, Ser. No. 160,281

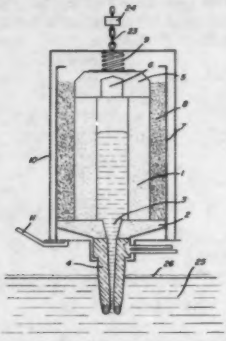
Claims priority, application France, Jun. 18, 1979, 79 15485

Int. Cl.³ C04B 35/60; B29C 5/02

U.S. Cl. 264—332 3 Claims

1. A method for casting parts of fused ceramic material from a bath of oxides maintained in the liquid state in a furnace, said method comprising the steps of:

(a) providing a mold of refractory material which is permeable to gas and impermeable to the liquid ceramic material, said mold having a cavity with an orifice at its lower end,
(b) connecting the lower end of the mold cavity to a downwardly directed feed duct having a small diameter port,
(c) dipping the lower end of said duct in the liquid bath,
(d) establishing a vacuum in the mold cavity by causing the gases in said cavity and said duct to pass through the said gas-permeable material of the mold, said vacuum causing the bath liquid to rise in the duct and in the mold cavity,



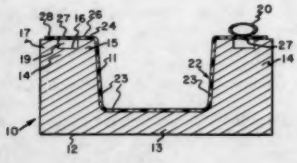
said vacuum being applied to the mold in an abrupt manner so that the liquid is sprayed and propelled from said small diameter port against the mold walls,
(e) allowing the bath liquid to solidify in the duct before the mold cavity is completely filled,
(f) lifting the mold, together with the duct, away from the liquid bath and transporting the same away from the furnace, and
(g) allowing complete solidification of the bath liquid in the mold, whereby to form a hollow casting in said mold cavity.

4,374,800

METHOD FOR MAKING AN ARTICLE OF PARTIALLY CRYSTALLINE ORGANIC RESIN

Robert J. Gartland, Youngstown, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Mar. 18, 1981, Ser. No. 244,836
Int. Cl.³ B29C *17/04*
U.S. Cl. 264—522 **6 Claims**



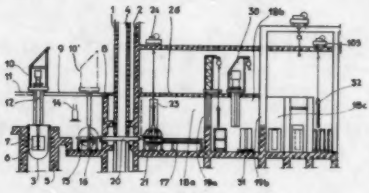
1. A process for thermoforming a themally crystallizable polyalkylene terephthalate resin sheet which is substantially unoriented and has an initial thermally induced crystallinity of less than 10 percent into a container having a perimetric flange surrounding a body portion, comprising:
(a) rapidly preheating the sheet to a suitable thermoforming temperature so as not to increase the average thermally induced crystallinity to more than 10 percent and very shortly thereafter,
(b) contacting and conforming the sheet while preheated with a heated mold having a body-forming portion which is at temperature in the range of about 140 to 190 degrees C., and a flange-forming portion surrounding the body-forming portion,
(c) simultaneously with step (b) rapidly reducing the temperature of a part of that portion of said sheet which overlies the flange-forming portion of said mold to reduce the rate of thermally induced crystallization thereof,
(d) maintaining contact of the conformed sheet with the heated mold until an average crystallinity of at least about 20 percent is achieved in that portion of the sheet which contacts the body-forming portion of the mold while maintaining said part of that portion of the sheet which overlies the flange-forming portion of the mold at a lower temperature; and
(e) removing the thermoformed sheet from the mold.

4,374,801

METHOD OF HANDLING FUEL ASSEMBLIES AND RODS WHEN RELOADING A NUCLEAR REACTOR

Michel Albin, Vaucresson, France, assignor to Framatome, Courbevoie, France

Filed Jun. 25, 1980, Ser. No. 163,207
Claims priority, application France, Jun. 26, 1979, 79 16349
Int. Cl.³ G21C *19/00*
U.S. Cl. 376—264 **8 Claims**



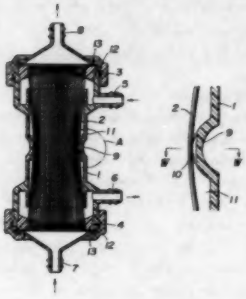
1. Method of handling fuel assemblies and rods in the reloading with fuel of a nuclear reactor containing assemblies closed by two caps and having a framework inside which fuel rods are disposed vertically, the reloading being effected with the vessel of said reactor in open position and the swimming pool surrounding said vessel filled with water, and comprising transfers of fuel assemblies from one position to another inside the core of said reactor, replacement of unsuitable assemblies by suitable assemblies, and various tests, each replaced assembly being taken from the vessel of said reactor, placed in a transfer container and conveyed, in horizontal position, into the swimming pool for the fuel adjoining the reactor, said method comprising the steps of
(a) placing said assembly in a vertical position inverted relative its operative position in the core of the reactor, i.e., with its lower cap uppermost;
(b) de-mounting said lower cap so that access can be had to the ends of said fuel rods;
(c) identifying fuel rods requiring replacement in said assembly if such identification has not been carried out previously;
(d) simultaneously taking up a set of rods to be replaced;
(e) continuing the taking up of rods in sets until all the rods to be replaced have been taken up;
(f) depositing said sets of rods in a storage area;
(g) taking up replacement rods corresponding precisely to the sets of rods to be replaced;
(h) depositing said replacement rods in sets in the framework of said fuel assembly;
(i) replacing the lower cap of said assembly; and
(j) conveying said assembly into said reactor vessel at its new location.

4,374,802

OXYGENATOR

Hiromichi Fukasawa, Narashino, Japan, assignor to Terumo Corporation, Tokyo, Japan

Filed Sep. 16, 1981, Ser. No. 302,550
Claims priority, application Japan, Sep. 25, 1980, 55-133172
Int. Cl.³ A61M 1/03
U.S. Cl. 422—48 7 Claims



1. An oxygenator for blood, comprising:

an elongated hollow housing;

a bundle of hollow fibers made of a plurality of hollow fibers for gas exchange disposed inside said housing along the longitudinal direction thereof, the ends of said hollow fibers having openings;

two partition walls respectively supporting the two end portions of the hollow fibers in a liquid tight manner without blocking the openings at the ends of said hollow fibers and defining a gaseous chamber along with the inner wall of the said housing and the outer surfaces of the said hollow fibers;

inlet and outlet ports for passing gaseous material, said inlet and outlet ports being in communication with the interior of said chamber and extending through a wall of said housing;

inlet and outlet ports for passing blood, each communicating with the interior spaces of each of said hollow fibers on the outside of the said partition walls;

an inward projection formed in an intermediate portion of said housing in the longitudinal direction thereof for engaging and fastening said bundle of hollow fibers to said housing and defining chamber portions inside said housing on opposing sides of said inward projection;

at least one liquid passing groove formed at said inward projection for passing liquid collected at a narrow portion of the said housing defined by said inward projection from one of said chamber portions to the other end of said chamber portions in said housing, said collected liquid flowing down along the inner wall of said one chamber portion of said housing, through said at least one groove, and to said other chamber portion;

each groove having a cross sectional area of from about 0.005 to 2.9 mm^2;

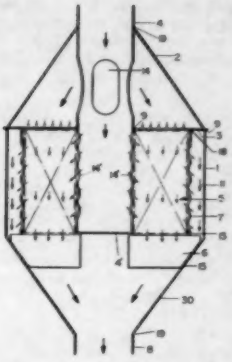
said grooves having a total cross sectional area S and said hollow fibers of said bundle of hollow fibers having a total membrane area M such that S/M is not less than 2.7×10^{-7}.

4,374,803

CATALYTIC WASTE GAS CONVERTER FOR COMBUSTION MACHINES

Gerhard Fratzer, and Bernhard Beck, both of Rheinfelden, Fed. Rep. of Germany, assignors to Degussa Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Nov. 3, 1980, Ser. No. 203,673
Claims priority, application Fed. Rep. of Germany, Nov. 7, 1979, 2944841
Int. Cl.³ B01D 53/36; F01N 3/28
U.S. Cl. 422—176 15 Claims



1. A catalytic waste gas converter suitable for use with an internal combustion engine comprising in combination: a cylindrical housing with gas inlet means at one end thereof and gas withdrawal means at the other end thereof, a first conical cover at the gas inlet end of the housing and a second conical cover at the gas withdrawal end of the housing, a holding plate in said housing, said holding plate comprising inner and outer rings connected by spokes, means for fastening said holding plate at the periphery of the outer ring at the transition between the cylindrical housing and the cover at the gas inlet end thereof, a gas supply tube passing through the cover on the gas inlet end of the housing and through the inner ring of the holding plate and extending up to the plane of the cover at the gas withdrawal end of the housing, said gas supply tube being closed at the end thereof, the section of the gas supply tube before the holding plate and within the cover on the gas inlet end of the housing having openings on the circumference and the section of the gas supply tube lying below the holding plate having perforations, a coil surrounding the perforated section of the gas supply tube and reaching in its cross section at least to the inner edge of the outer ring of the holding plate or closely thereunder, said coil being made of catalyst coated, alternating smooth and undulating layers of a high temperature and scale resistant steel screen, said coil being supported on its downstream face by flange means fastened to the cover on the gas withdrawal side of the housing; said coil having a perforated cylinder disposed on its periphery, and a gas withdrawal tube attached to the cover on the gas withdrawal end of the housing.

4,374,804

CONTROLLED SLUDGE COMPOSTING SYSTEM

James M. Easter, II, P.O. Box 23, Owings Mills, Md. 21117

Filed Aug. 7, 1980, Ser. No. 176,197
Int. Cl.³ B01J 1/00
U.S. Cl. 422—184 10 Claims

1. A controlled sludge composting system, comprising:

a sludge storage means, said sludge storage means containing and providing a quantity of sludge;

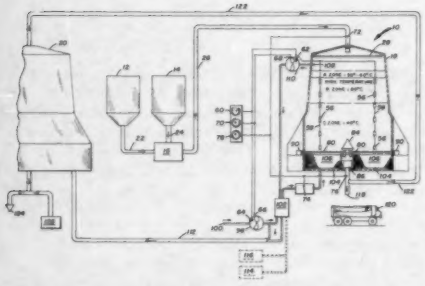
a composting agent storage means, said composting agent

storage means containing and providing a quantity of composting agent;

a mixing means, said sludge storage means and said composting agent storage means being connected by a first and second conveying means, respectively, to said mixing means and communicating internally therewith and therebetween, a predetermined ratio of amounts of said sludge and said composting agent being received through said first and second conveying means, respectively, into said mixing means and being thoroughly mixed therein;

a first silo means, said mixing means being connected by a third conveying means to said first silo means and communicating internally therewith and therebetween, said predetermined ratio of amounts of said sludge and said composting agent being transferred to and discharged into the top end of said first silo means from said mixing means by said third conveying means after being thoroughly mixed in said mixing means;

a first material distribution means, said first material distribution means being located and installed within said first silo means at the uppermost end thereof, said first material distribution means having a first traveling carrier component, said first traveling carrier component being mounted and movably affixed within said first silo means so as to move longitudinally therewithin and having a first traveling carriage element mounted and movably affixed upon said first traveling carrier component so as to move transversely within said first silo and having a fourth conveyor means mounted and



affixed upon said first traveling carriage element, said discharge of said mixture of said sludge and said composting agent into said first silo being directed to said fourth conveyor means, said fourth conveyor means distributing said mixture of said sludge and said composting material in even layers over entire area of said first silo by a concurrent matrix-like movement of said longitudinal movements of said first traveling carrier component, said transverse movements of said first traveling carriage element, and movements of said fourth conveyor means, said matrix-like deposition of said mixture being an evenly layered distribution without separation of the materials to fill said first silo with said mixture of said sludge and said composting agent;

a first material removal means, said first material removal means being located and installed within said first silo means, said first material removal means having a first horizontal screw conveyor component, said first horizontal screw conveyor component being located at the bottom end of said first silo means and being situated transversely thereto, said first horizontal screw conveyor component having a rack and pinion type element at each end of said first horizontal screw conveyor component, said rack and pinion element providing a longitudinal movement of said first horizontal screw conveyor component in relation to the transverse direction of said first silo, said first horizontal screw conveyor component being capable of cutting off successive bottom layers of the mixture of sludge and composting agent materials which has been processed through said first silo from said top end to said bottom end, said first horizontal screw conveyor component thereby transporting said cut off layers to one end thereof for discharge therefrom, said first material removal means having a fifth conveyor means, said fifth conveyor means being located at the discharge end of said first horizontal screw conveyor component, said fifth conveyor means transporting said discharged portion of processed mixture of sludge and composting agent materials to a subsequent dual discharge point for bulk disposal and for further processing;

a second silo means, said second silo means being connected to said first silo means by a sixth conveyor means, said sixth conveyor means receiving said processed mixture of sludge and composting agent from said further processing point of said dual discharge point and transporting said processed mixture to the top end of said second silo means for discharge therein;

a second material distribution means, said second material distribution means being located and installed within said second silo means at the uppermost end thereof, said second material distribution means having a second traveling carrier component, said second traveling carrier component being mounted and movably affixed within said second silo means so as to move longitudinally therewithin and having a second traveling carriage element mounted and movably affixed upon said second traveling carrier component so as to move transversely within said second silo and having a seventh conveyor means mounted and affixed upon said second traveling carriage element, said discharge of said processed mixture at said top end of said second silo being directed to said seventh conveyor means, said seventh conveyor means distributing said processed mixture in even layers over entire area of said second silo by a concurrent matrix-like movement of said longitudinal movements of said second traveling carrier component, said transverse movements of said traveling carriage element, and movements of said seventh conveyor means, said matrix-like deposition of said processed mixture being an evenly layered distribution without separation of the materials to fill said second silo with said processed mixture;

a second material removal means, said second material removal means being located and installed within said second silo means, said second material removal means having a second horizontal conveyor screw component, said second horizontal screw conveyor component being located at the bottom end of said second silo means and being situated transversely thereto, said second horizontal screw conveyor component having a rack and pinion type element at each end of said second horizontal screw conveyor component, said rack and pinion element providing a longitudinal movement of said second horizontal screw conveyor component in relation to the transverse direction of said second silo, said second horizontal screw conveyor component being capable of cutting off successive bottom layers of the processed mixture which has been processed through said second silo from said top end to said bottom end, said second horizontal screw conveyor component thereby transporting said cut off layers to one end thereof for discharge therefrom, said second material removal means having an eighth conveyor means, said eighth conveyor means being located at the discharge end of said second horizontal screw conveyor component, said eighth conveyor means transporting said discharged portion of said processed mixture to a subsequent dual discharge point for bulk distribution and for bagging for distribution.

4,374,805

REDUCTANTS FOR REDUCING METALS IN ACID MEDIA

Ralph E. Worthington, Winter Haven, Fla.; Michael A. Smith, Valdosta, Ga., and John M. Tobias, Lakeland, Fla., assignors to Uranium Recovery Corporation, Mulberry, Fla.

Continuation of Ser. No. 909,843, May 26, 1978, abandoned. This application May 7, 1980, Ser. No. 147,363
Int. Cl.³ C01G 43/00
U.S. Cl. 423—10 18 Claims

9. A process for the recovery of uranium from wet-process phosphoric acid derived from the sulfuric acid acidulation of uncalcined phosphate rock comprising contacting wet-process phosphoric acid containing ferric iron and uranium values with a reductant selected from the group consisting of silicon metal and iron-silicon alloy containing about 5 to 80% silicon by weight to reduce ferric iron to ferrous iron and any hexavalent uranium to tetravalent uranium and contacting the reduced wet-process phosphoric acid with an organic extractant selective for uranium in the tetravalent state.

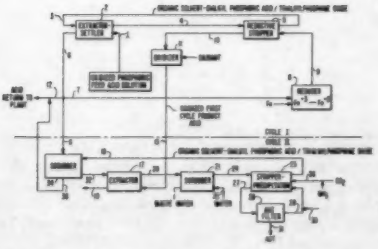
12. A process for reducing a metal to a lower oxidation state in an acid comprising contacting an acid selected from the group consisting of phosphoric acid, sulfuric acid and hydrochloric acid containing the metal selected from the group consisting of iron, uranium, vanadium, molybdenum and a rare earth with a reductant selected from the group consisting of silicon metal and iron-silicon all containing about 5 to 80% silicon by weight in the presence of fluoride ion to reduce at least a portion of said metal in said acid to a lower oxidation state.

4,374,806

RAFFINATE WASH OF SECOND CYCLE SOLVENT IN THE RECOVERY OF URANIUM FROM PHOSPHATE ROCK

Hani A. Abodishish, and Robert W. Ritchey, both of Lakeland, Fla., assignors to Wyoming Mineral Corporation, Lakewood, Colo.

Filed Jun. 17, 1980, Ser. No. 160,245
Int. Cl.³ C01G 56/00; B01D 11/00
U.S. Cl. 423—10 6 Claims



1. In the process of recovering uranium from an aqueous solution of wet process phosphoric acid feed, comprising a first and a second cycle, where phosphoric acid is passed through extractor means and stripper means in both cycles and where a phosphoric acid raffinate containing about 3 grams to about 15 grams per liter of iron exits the extractor means in the first cycle; the improvement comprising treating a second cycle ammonia laden organic solvent stream to remove ammonia therefrom, after said solvent has passed through a second cycle stripper means and contacted ammonium compounds, said treating consisting of scrubbing said second cycle ammonia laden organic solvent stream in the second cycle, with first cycle phosphoric acid raffinate containing about 3 grams to about 15 grams per liter of iron, from the first cycle extractor means, in an amount effective to remove ammonia, to provide an ammonia barren organic solvent stream which is then fed into the second cycle extractor means without forming any substantial amounts of iron-ammonium-phosphate precipitate, where the volume ratio of the second cycle ammonia laden organic solvent stream:first cycle iron containing phosphoric acid raffinate stream from the first cycle extractor means is from 1:0.2 to 0.5.

4,374,807

METHOD FOR RECOVERING ALUMINUM FLUORIDE FROM FLUORINE-CONTAINING AQUEOUS ALUMINUM NITRATE SOLUTIONS

Hiroshi Ishimi, Yokohama; Hisaaki Shimauchi, and Chuzaburo Tanaka, both of Tohkaimura, all of Japan, assignors to Sumitomo Metal Mining Company Ltd., Tokyo, Japan

Filed Jul. 17, 1980, Ser. No. 169,830
Claims priority, application Japan, Jul. 30, 1979, 54/96987
Int. Cl.³ C01G 43/025
U.S. Cl. 423—11 20 Claims

7. In a process for converting UF_6 into UO_2 wherein UF_6 is brought into contact with an aqueous aluminum nitrate solution to thereby produce an intermediate solution containing aluminum fluoride, uranyl nitrate and residual aluminum nitrate, and wherein the uranyl nitrate is removed from said intermediate solution to present a resultant solution containing aluminum fluoride and aluminum nitrate, the improvement of which comprises:

adding a sufficient quantity of hydrofluoric acid to the resultant solution to substantially minimize the solubility of aluminum fluoride therein and thereby produce a substantially uranium-free aluminum fluoride precipitate and an uranium-containing aqueous solution; and thereafter

separately recovering the substantially uranium-free aluminum fluoride precipitate thus produced.

4,374,808

REMOVAL OF SELENIUM FROM ACIDIC COPPER/NICKEL SOLUTIONS

Donald R. Weir; Derek G. E. Kerfoot, both of Fort Saskatchewan, Canada, and Zdenek Hofirek, Rustenburg, South Africa, assignors to Sherritt Gordon Mines Limited, Toronto, Canada

Filed Jun. 24, 1982, Ser. No. 391,807
Claims priority, application Canada, Oct. 30, 1981, 389144
Int. Cl.³ C01G 3/10; C01B 19/04
U.S. Cl. 423—42 11 Claims

3. A process for the removal of selenium (IV) and selenium (VI) from an aqueous acidic copper and nickel sulphate solution comprising the steps of adjusting and maintaining the acidity of the solution to a pH below 1 corresponding to at least 10 g/L sulphuric acid and, as a first stage, passing the solution at a temperature in the range of about 140° to 175° C. through a reactor and injecting into the solution in the reactor a selenium-reducing compound selected from the group consisting of sulphur dioxide and a sulphite-containing solution for the substantial precipitation of selenium (IV), and as a second stage, maintaining the resulting solution or slurry at a temperature in the range of about 140° to about 200° C. in an essentially oxygen-free atmosphere at a pressure within the range of about 400 to about 1750 kPa to obtain a final solution containing less than 5 mg/L total selenium and a precipitate consisting of cuprous selenide (Cu_2Se), and metallic copper.

4,374,809

PROCESS FOR THE SEPARATION OF MOLYBDENUM VALUES FROM TUNGSTEN VALUES

Mark S. Chagnon, Lowell, Mass.; Joseph E. Lester, Gibsonia, Pa., and Samuel Natansohn, Sharon, Mass., assignors to GTE Laboratories Incorporated, Waltham, Mass.

Filed Oct. 16, 1981, Ser. No. 311,838
Int. Cl.³ C01G 39/00, 41/00
U.S. Cl. 423—54 18 Claims

1. A process for removing molybdenum values from an aqueous solution containing tungsten values and molybdenum

values, said aqueous solution being at a pH greater than 8.5, said process comprising:

contacting said aqueous solution with an extractant comprising

a mercaptoaromatic complexing agent having two mercapto groups at ortho positions to each other, and

an organic solvent;

the contacting of the aqueous solution with the extractant taking place for a sufficient amount of time to extract a portion of said molybdenum values without extracting an appreciable portion of said tungsten values.

4,374,810

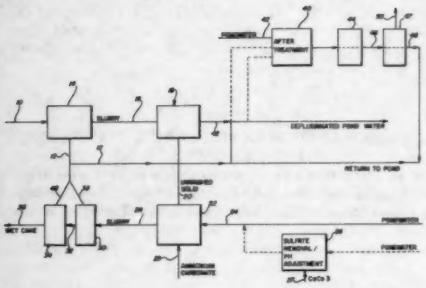
RECOVERY OF FLUORINE FROM POND WATER OF WET PROCESS PHOSPHORIC ACID PLANTS AND RECYCLING OF DEFLUORINATED WATER

Padraic S. O'Neill, Baton Rouge, La., assignor to Agrico Chemical Company, Tulsa, Okla.

Continuation of Ser. No. 911,668, Jun. 1, 1978, abandoned. This application Jun. 4, 1979, Ser. No. 45,116

Int. Cl.³ C01F *11/22*; C02F *1/52*

U.S. Cl. 423—160 **11 Claims**



1. A process for recovering a metallurgical grade fluorspar containing from about 60 to about 80% calcium fluoride from the waste water pond of phosphoric acid plants and returning the defluorinated water to the pond, said waste water having a pH of about 0.8 and containing from about 0.5 to about 1.5% fluoride, from about 0.5 to about 1.5% phosphates and less than about 0.4% sulfates, comprising the steps of:

(1) adding sufficient calcium carbonate to the waste water to obtain an adjusted waste water solution having a pH in the range 2–3, whereby calcium fluoride is precipitated without substantial precipitation of phosphates and sulfates;

(2) washing the precipitate formed in step (1) with the waste water and with an ammonium carbonate solution to reduce the phosphate and sulfate content of said precipitate;

(3) filtering the washed precipitate obtained in step (2) to recover a metallurgical grade fluorspar and to obtain a phosphate and sulfate containing filtrate;

(4) mixing the phosphate and sulfate containing filtrate of step (3) with sufficient waste water to reduce the pH thereof to a value in the range of 1.5–2.0;

(5) sedimentating the mixture obtained in step (4) for 5–21 days to separate silica therefrom to obtain a clear solution; and

(6) returning the clear solution obtained in step (5) to the pond.

4,374,811

METHOD FOR COOLING AND SEPARATING CHLORIDES AND FLUORIDES FROM AMMONIACAL GAS

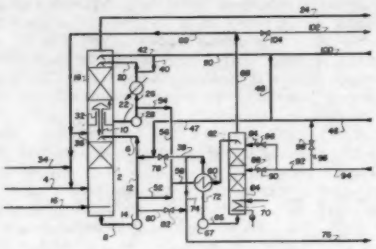
Robert Karger, Dortmund, and Horst Dungs, Herne, both of Fed. Rep. of Germany, assignors to Firma Carl Still GmbH and Co. KG, Fed. Rep. of Germany

Filed Sep. 26, 1980, Ser. No. 191,014

Claims priority, application Fed. Rep. of Germany, Oct. 5, 1979, 2940412

Int. Cl.³ B01D *53/34*

U.S. Cl. 423—240 **22 Claims**



1. A method of cooling and separating chlorides and fluorides from an untreated ammoniacal gas produced in the carbonization or gasification of coal comprising the steps of cooling the gas, said cooling step including directly adding a concentrated aqueous salt solution having a high concentration of at least one of chlorine and fluorine ions close to saturation for the temperature of the solution to the ammoniacal gas in a cooler (a) to form a first salt solution enriched with chlorides, fluorides and ammonia compounds and a treated gas, and (b) removing at least part of the enriched solution from the cooler.

4,374,812

PROCESS FOR STACK GAS TREATMENT

Masumi Atsukawa; Naoharu Shinoda; Atsushi Tatani, all of Hiroshima, and Taku Shimizu, Kawasaki, all of Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 56,613, Jun. 11, 1979, abandoned. This application Nov. 28, 1980, Ser. No. 211,083

Claims priority, application Japan, Jul. 11, 1978, 53-84239

Int. Cl.³ C01B *17/00*

U.S. Cl. 423—242 **1 Claim**

1. A wet process for stack gas treatment wherein the stack gas is scrubbed in a scrubber with a scrubbing suspension containing calcium hydroxide, calcium carbonate, or mixtures thereof to remove sulfur oxides from the gas, characterized in that at least a part of the scrubbing suspension is taken out from the scrubber into the oxidizer, where it is oxidized with a supply of air or oxygen containing gas and, after the oxidation, all of the scrubbing suspension from said oxidizer is recycled to said scrubber whereby at least 18% of the sulfur oxides absorbed from the gas by said scrubbing suspension is oxidized to gypsum, the concentration of calcium sulfate in said scrubbing suspension being from 2 to 15% by weight of the total weight of the liquid in said scrubbing suspension.

4,374,813

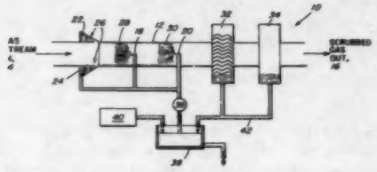
REVERSE-JET SCRUBBER APPARATUS AND METHOD

Gilbert K. Chen, and Timothy L. Holmes, both of Wichita, Kans., assignors to Koch Engineering Company, Inc., Wichita, Kans.

Continuation-in-part of Ser. No. 149,148, May 14, 1980, abandoned. This application Apr. 20, 1981, Ser. No. 251,277

Int. Cl.³ C01B *7/00*

U.S. Cl. 423—242 **28 Claims**



13. A method for scrubbing particulate material and gaseous contaminants from a high-velocity gas stream having a gas-drag parameter of 4.0 or greater, which method comprises:

(a) passing the gas stream through an elongated conduit having an inlet for introducing the gas stream to be scrubbed, and an outlet for the discharge of a scrubbed gas stream, the elongated conduit characterized by an interior wall surface;

(b) forming a plurality of plug-like, separate scrubbing zones within the conduit by spraying an alkaline scrubbing liquid countercurrent to the flow of the gas stream under sufficient force and pressure, to overcome initially the force of the gas stream, the scrubbing zones covering substantially the cross-sectional area of the conduit, and each scrubbing zone not overlapping substantially with any other scrubbing zone, to provide a pressure drop of the gas stream of about 2.8 inches of water or less in each scrubbing zone;

(c) passing the gas stream to be scrubbed through the scrubbing zones to obtain a scrubbed gas stream;

(d) separating liquid material from the scrubbed gas stream; and

(e) discharging a scrubbed gas stream.

4,374,814

METHOD FOR REMOVAL OF GASEOUS FORMALDEHYDE FROM THE ATMOSPHERE

Norman G. Gaylord, New Providence, N.J., assignor to Pure Air, Inc., Metairie, La.

Filed Apr. 28, 1981, Ser. No. 258,499

Int. Cl.³ B01D *53/34*

U.S. Cl. 423—245 **26 Claims**

1. A method for purifying air by removal of gaseous formaldehyde which consists in permitting the air to come in contact with a solid shaped composition consisting essentially of one or more polyhydric water-soluble polymers and ambient moisture.

4,374,815

PHOSPHONITRILIC CHLORIDE POLYMERS

Hsueh M. Li, Baton Rouge, La., assignor to Ethyl Corporation, Richmond, Va.

Filed Oct. 26, 1981, Ser. No. 314,522

Int. Cl.³ C01B *25/10*

U.S. Cl. 423—300 **27 Claims**

1. A process for producing linear phosphonitrilic chloride polymers from linear phosphonitrilic chloride oligomers of lower molecular weight which comprises:

(a) heating a mixture of linear phosphonitrilic chloride oligomer having an average degree of polymerization of at least 4 and an excess of ammonia or ammonium chloride at a temperature in the range of about 130° to about 250° C. while concurrently removing hydrogen chloride and concurrently or subsequently removing cyclic phosphonitrilic chloride oligomer from the heated reaction mixture; and

(b) after the formation of cyclic phosphonitrilic chloride oligomer has essentially ceased and after removal of the oligomer, heating the reaction mixture in an inert liquid solvent at a temperature in the range of about 130° to about 250° C. to increase the molecular weight of the dissolved linear phosphonitrilic chloride polymer.

4,374,816

PROCESS FOR PRODUCING HYPO-PHOSPHOROUS ACID (H_3PO_2) AND NON-TRANSITION METAL HYPOPHOSPHITES

Gregory G. Arzoumanidis, Stamford, Conn., and Kirk V. Darragh, Yorktown, N.Y., assignors to Stauffer Chemical Company, Westport, Conn.

Continuation of Ser. No. 35,576, May 3, 1979, Pat. No. 4,265,866. This application Nov. 17, 1980, Ser. No. 207,306

The portion of the term of this patent subsequent to May 5, 1998, has been disclaimed.

Int. Cl.³ C01B *25/12, 25/16, 15/16*

U.S. Cl. 423—304 **28 Claims**

1. A process comprising reacting, in the absence of a catalyst and under an acidic condition wherein said acidic condition is a pH of less than about 6, phosphine with an aqueous solution of hydrogen peroxide to produce an acid solution containing hypophosphorous acid (H_3PO_2) as the predominant phosphorus containing acid.

4,374,817

FORMULATION OF PHOSPHATE ROCK SLURRIES

Richard L. Lehman, Belle Mead, and John A. Shepherd, Jamesburg, both of N.J., assignors to FMC Corporation, Philadelphia, Pa.

Filed Aug. 21, 1981, Ser. No. 294,964

Int. Cl.³ C01B *25/16*; C01F *11/44*

U.S. Cl. 423—319 **12 Claims**

8. In the process of producing an aqueous slurry of ground phosphate rock which slurry has a solids content between about 60% and about 80% by weight and a reduced Brookfield viscosity below about 2500, which process comprises grinding phosphate rock and dispersing the ground particles of said rock in an aqueous medium, the improvement which comprises providing said reduced viscosity by incorporating in said slurry at some point in its preparation both sodium tripolyphosphate and an alkaline material selected from the group consisting of sodium hydroxide, potassium hydroxide and mixtures thereof.

4,374,818

PROCESS FOR THE PREPARATION OF ALKALI METAL SALTS OF IMIDODISULFONIC ACID

Hans-Peter Rieck, Kelkheim, Fed. Rep. of Germany, assignor to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Oct. 14, 1981, Ser. No. 311,273

Claims priority, application Fed. Rep. of Germany, Oct. 16, 1980, 3039021

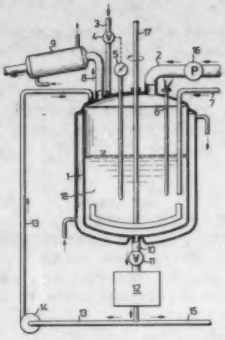
Int. Cl.³ C01B *21/093*

U.S. Cl. 423—388 **13 Claims**

1. A process for obtaining an alkali metal salt of imidodisulfonic acid which comprises hydrolyzing ammonium nitrilotrisulfonate in the presence of an alkali metal hydroxide.

7. A process for obtaining an alkali metal salt of imidodisulfonic acid which comprises adding ammonium nitrilotrisulfon-

ate to an aqueous solution having a pH of from 0 to 7, effecting a desired degree of hydrolysis and then adding to the resulting



reaction mixture an amount of alkali-metal hydroxide sufficient to increase the pH value to from 7 to 11.

4,374,819

CATALYTIC PROCESS FOR REMOVING TOXIC GASES FROM GAS STREAMS

Frank C. Palilla, Framingham; Gary G. Gaudet, Dorchester, and Joseph A. Baglio, Andover, all of Mass., assignors to GTE Laboratories Incorporated, Waltham, Mass.

Division of Ser. No. 93,662, Nov. 13, 1979, abandoned, which is a continuation-in-part of Ser. No. 715, Jan. 3, 1979, abandoned, which is a continuation of Ser. No. 864,692, Dec. 27, 1977, abandoned. This application Dec. 22, 1980, Ser. No. 218,845

Int. Cl.³ C01B *17/04*

U.S. Cl. 423—570 **24 Claims**

1. A multi-stage process for reducing the content of hydrogen sulfide, sulfur dioxide, carbonyl sulfide and disulfide in a gas stream which comprises

(a) passing said gas stream through a first reaction stage at a temperature between about 150° and about 350° C., said stage containing a pretreated catalyst of the formula

$$xLn_2O_3.yT_2O_3$$

in which Ln is yttrium or a rare earth element and T is selected from the group consisting of cobalt, iron and nickel and each of x and y independently is a number from 0 to 3, said catalyst being substantially non-crystalline and having a surface area of from about 10 m^2/g to about 40 m^2/g and having been prepared at a temperature no higher than 700° C, to obtain elemental sulfur and a first product stream having reduced content of sulfur containing gases,

(b) passing the first product stream through one or more intermediate catalytic reaction stages in which the Claus reaction occurs, to obtain further elemental sulfur and a second product stream having further reduced content of sulfur containing gases, and

(c) passing the second product stream through a final reaction stage at a temperature between about 150° and 300° C., said final stage containing a catalyst usable in the first reaction stage, in the presence of air to obtain elemental sulfur and still further reduced content of the sulfur containing gases, which gases can be recyled to an earlier stage.

4,374,820

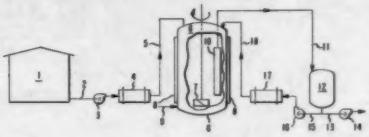
MANUFACTURE OF H_2O_2

Thomas E. Guenter, Memphis, Tenn., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Jul. 29, 1981, Ser. No. 288,005

Int. Cl.³ C01B *15/02*

U.S. Cl. 423—588 **7 Claims**



1. A process of hydrogenating an alkylanthraquinone working solution comprising feeding an alkylanthraquinone working solution in the oxygenated form at a temperature of from 20° to 40° C. to a hydrogenator containing a slurry of supported hydrogenation catalyst which is supported palladium, supported platinum or supported nickel having a median particle size of from 70 to 200 microns and less than 10% by weight particles less than 50 microns in diameter, the working solution in the hydrogenerator being maintained at from 38° to 60° C., and containing from 2 to 15% catalyst maintaining the pressure in the hydrogenator at from about 10 to about 100 psig, removing hydrogenated working solution from the hydrogenator through immersed filters which retain essentially all the catalyst in the hydrogenerator, dividing the hydrogenated working solution into a recycle stream which comprises from 10 to 90 percent of the hydrogenated working solution and a remaining stream which is to be oxidized, cooling the recycle stream to from 20° to 40° C. and recycling the cooled stream to the hydrogenator.

4,374,821

MYOCARDIAL IMAGING AGENT AND METHOD

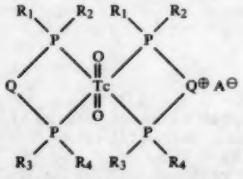
Kenneth A. Glavan, and James F. Kronauge, both of Plainsboro, N.J., assignors to E. R. Squibb & Sons, Inc., Princeton, N.J.

Filed Jun. 28, 1982, Ser. No. 392,811

Int. Cl.³ A61K *49/04*; C07F *9/28, 13/00*

U.S. Cl. 424—4 **16 Claims**

1. A technetium complex having the structure



wherein Q is a $-(CH_2)_n-$ linking group wherein n is 2 to 8, or a 1,2-phenylene linking group,

R_1, R_2, R_3 and R_4 are independently the same or different and are hydrogen, lower alkyl or phenyl, and

A represents an anion group.

15. A method for scanning the heart which comprises injecting intravenously the complex as defined in claim 1 in a pharmaceutically acceptable vehicle and scanning the heart.

4,374,822
ORAL COMPOSITION
Ralph Fine, East Brunswick, N.J., and Sidney Weiss, Levittown, Pa., assignors to Colgate-Palmolive, New York, N.Y.
Continuation-in-part of Ser. No. 312,211, Oct. 19, 1981, abandoned. This application Dec. 7, 1981, Ser. No. 327,668
Int. Cl.³ A61K 7/16, 7/26
U.S. Cl. 424—49 12 Claims

1. A flavored oral hygiene composition comprising a dental mouthwash, dental cream or dental gel vehicle consisting essentially of a humectant, a flavoring oil in amount to provide flavor characteristic to said composition up to about 5% by weight of said composition and about 0.002–0.007% by weight of a 5'-ribonucleotide.

4,374,823
DENTAL COMPOSITION
Kenneth Harvey, Wilmslow, and Harry Hayes, Warrington, both of England, assignors to Colgate-Palmolive Company, New York, N.Y.
Filed Aug. 17, 1981, Ser. No. 293,424
Claims priority, application United Kingdom, Aug. 19, 1980, 8026943
Int. Cl.³ A61K 7/16, 7/18
U.S. Cl. 424—52 5 Claims

1. A dental composition comprising 20 to 75% by weight of an aqueous liquid carrier consisting essentially of sorbitol as humectant and, proportioned therewith to provide a creamy or gel consistency in amount of 0.2 to 10% by weight, a gelling agent composition consisting essentially of xanthan and guar gum, the weight ratio of xanthan to guar gum being from 1:3 to 1:10.

4,374,824
DENTIFRICE
Hakeem V. R. Wahmi, Hyderabad, India, assignor to Krishan Dyal Mathur, Alexandria, Va.
Filed Jan. 27, 1981, Ser. No. 228,791
Int. Cl.³ A61K 7/16, 7/26
U.S. Cl. 424—58 4 Claims

1. A dentifrice composition comprising 2.0–10.0% by weight ginger, 6.0–16.0% by weight magnesium silicate, 6.0–16.0% by weight sodium chloride, 6.0–16.0% by weight borax, 2.0–20.0% by weight catechu; 4.0–14.0% by weight piper nigrum, 4.0–14.0% by weight alum, 2.0–16.0% by weight seed and shell of sweet almond, 2.0–14.0% by weight pyrethrum, 4.0–20.0% by weight mastic, and 4.0–20.0% by weight tobacco.

4,374,825
HAIR CONDITIONING COMPOSITIONS
Raymond E. Bolich, Jr., Maineville; Lloyd B. Hartsough, and Philip E. Cothran, both of Cincinnati, all of Ohio, assignors to The Proctor & Gamble Company, Cincinnati, Ohio
Continuation-in-part of Ser. No. 218,376, Dec. 22, 1980, abandoned, which is a continuation-in-part of Ser. No. 128,436, Mar. 10, 1980, abandoned. This application Feb. 17, 1981, Ser. No. 234,297
Int. Cl.³ A61K 7/06
U.S. Cl. 424—70 16 Claims

1. A hair conditioning composition in the form of an emulsion comprising:

(A) from about 1% to about 13% of a volatile liquid hair conditioning agent having a boiling point in the range of from about 99° C. to about 260° C. and a solubility in water of less than about 0.1% selected from the group consisting of hydrocarbons, silicones and mixtures thereof;

(B) from about 0.1% to about 8% of a substantially nonionic, water soluble polymer having a viscosity in excess of about 200 poises at a shear of about 10^{-2} sec^{-1} while having a viscosity less than about 9 poises at a shear of about 500 sec^{-1};

(C) from about 0.05% to about 4% of a cationic hair conditioning agent selected from the group consisting of quaternary ammonium salts or salts of fatty amines; and

(D) water.

4,374,826
SULFONAMIDE COMPOSITIONS
William W. Armstrong, Mill Neck, N.Y., assignor to Pfizer Inc., New York, N.Y.
Division of Ser. No. 170,490, Jul. 21, 1980, which is a continuation of Ser. No. 54,546, Jul. 5, 1979, abandoned. This application Jul. 10, 1981, Ser. No. 282,109
Int. Cl.³ A61K 31/79, 31/625
U.S. Cl. 424—80 3 Claims

3. A sulfonamide composition comprising an aqueous solution of about 20% w/v sulfadoxine, about 4% w/v trimethoprim, from about 60% to 80% w/v 2-pyrrolidone and from 1 to 5% w/v of polyvinylpyrrolidone, said composition having a pH value in the range of from about 7 to 9.5.

4,374,827
WATER SOLUBLE EXTRACT FROM NONPATHOGENIC AEROBIC CORYNEBACTERIA
Tiuzi Sindo; Tadashi Obara, both of Tokyo, and Hidenari Adachi, Osaka, all of Japan, assignors to Yamanouchi Pharmaceutical Co., Ltd., Tokyo, Japan
Continuation-in-part of Ser. No. 179,798, Aug. 20, 1980, abandoned. This application May 28, 1981, Ser. No. 267,768
Claims priority, application Japan, Aug. 30, 1979, 54-110724
Int. Cl.³ A61K 39/02, 35/78, 37/00
U.S. Cl. 424—92 4 Claims

1. A water soluble extract from *corynebacterium equi* Ko-85 Strain, the water soluble extract having a weight of protein content calculated as Bovine Serum Albumin to sugar content calculated as glucose of from 7.50:1 to 13.42:1, the ratio of the optical density at 260 nm to that at 280 nm from 1.56 to 1.62, an isoelectric point of 3.75–3.80, and having a suppressive effect on immunoglobulin E (IgE) antibody.

4,374,828
BIOLOGICALLY ACTIVE THYMONES FROM THE THYMUS
Karl Folkers; Teresa M. Kubiak; Henryk M. Stepien, all of Austin, Tex., and Naoki Sakura, Ohkuwa, Japan, assignors to Board of Reagents, The University of Texas System, Austin, Tex.
Filed Nov. 17, 1980, Ser. No. 199,997
Int. Cl.³ A61K 37/00
U.S. Cl. 424—177 4 Claims

1. A class of biologically active substances from thymus tissue consisting essentially of thymone A, having

an electrophoretic Rf of 0.37, relative to lysine, in the solvent system, pyridine-acetic acid-water (4:1:45) at pH 5.3, 800 V, 22 mA, 15 min. (cellulose plates, 10×20 cm);

an electrophoretic Rf of 0.33, relative to lysine, in the solvent system, pyridine-acetic acid-water (1:10:190) at pH 3.5, 1000 V, 6 mA, 20 min. (cellulose plates, 10×20 cm);

an electrophoretic Rf of 0.28, relative to lysine, in the solvent system pyridine-acetic acid-water (10:0.4:89.6) at pH 6.45, 2000 V, 6 mA, 10 min. (cellulose plates, 10×20 cm);

approximately 68 to 71 amino acid; as moieties representing approximately 14 amino acids: aspartic acid—4 to 5 units; threonine—4 units; serine—6 units; glutamic acid—9–10 units; proline—8 units; glycine—6 units; alanine—5 to 6 units; valine—3 to 4 units; methionine—1 unit; isoleucine—1 to 2 units; leucine—3 units; histidine—2 units; lysine—11 to 12 units; arginine—3 to 4 units; and

biological activities to stimulate the proliferation of lymphocytes and the formation of cyclic adenosine monophosphate; thymone B, having

an electrophoretic Rf of 0.05, relative to lysine; phridine:AcOH:H_2O (2.6:30:876) pH 3.5; 1000 V, 3 mA, 20 min. (cellulose plates 5×20 cm);
a TLC Rf of 0.53; n-BuOH:pyridine:AcOH:H_2O (30:30:6:24) (Silica gel plates, 5×10 cm);
a TLC Rf of 0.48; EtOAc:pyridine:AcOH:H_2O (5:5:1:3) (Silica gel plates, 5×10 cm);
a TLC Rf of 0.61; n-BuOH:AcOH:H_2O (1:1:3:1) (Silica gel plates, 5×10 cm);
as moieties representing approximately the 13 amino acids: aspartic acid, threonine, serine, glutamic acid, proline, glycine, alanine, valine, isoleucine, leucine, histidine, lysine, arginine; and
biological activities to stimulate the proliferation of lymphocytes and the formation of cyclic guanosine monophosphate; and
thymone C, having the ability to stimulate the proliferation of lymphocytes,
being extractable by methanol or acetic acid from defatted thymus tissue,
having a retention time similar to thymone A on CM-Sephadex chromatography, and
being separated from lymphocyte proliferation inhibitory substances by chromatography on DEAE-Sephadex A-25 chromatography followed by CM-Sephadex C-25 chromatography.

4,374,829

AMINOACID DERIVATIVES AS ANTIHYPERTENSIVES

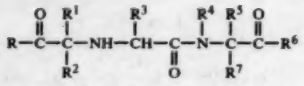
Elbert E. Harris; Arthur A. Patchett, both of Westfield; Edward W. Tristram, Watchung, and Matthew J. Wyvratt, Mountainside, all of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

Continuation-in-part of Ser. No. 79,898, Oct. 9, 1979, abandoned, which is a continuation-in-part of Ser. No. 36,279, May 7, 1979, abandoned, which is a continuation-in-part of Ser. No. 968,249, Dec. 11, 1978, abandoned. This application Feb. 17, 1981, Ser. No. 235,335

Int. Cl.³ A61K *37/00;* **C07C** *103/52;* **C07D** *207/24*

U.S. Cl. 424—177 **82 Claims**

1. A compound of the formula:



wherein
R and R^6 are the same or different and are hydroxy,
lower alkoxy,
lower alkenoxy,
diloweralkylamino lower alkoxy,
acylamino lower alkoxy,
acyloxy lower alkoxy,
aryloxy,
arloweralkyloxy
substituted aryloxy or substituted arloweralkoxy wherein the substituent is methyl, halo, or methoxy,
amino,
loweralkylamino
diloweralkylamino,
arloweralkylamino or
hydroxyamino;
R^1 is hydrogen,
alkyl of from 1 to 20 carbon atoms, including branched, cyclic and unsaturated alkyl groups;
substituted lower alkyl wherein the substituent is
halo
hydroxy
lower alkoxy
aryloxy
amino
loweralkylamino
diloweralkylamino
acylamino
arylamino
guanidino
imidazolyl,
indolyl,
mercapto,
loweralkylthio
arylthio
carboxy
carboxamido
carboloweralkoxy
phenyl
substituted phenyl wherein the substituent is
lower alkyl
lower alkoxy or
halo;
arloweralkyl or heteroarloweralkyl,
arloweralkenyl or heteroarloweralkenyl,
substituted arloweralkyl, substituted heteroarloweralkyl, substituted arloweralkenyl or substituted heteroarloweralkenyl, wherein the substituent is halo or dihalo
lower alkyl
hydroxy
lower alkoxy
amino
aminomethyl
acylamino
diloweralkylamino
loweralkylamino
carboxyl
halo loweralkyl
cyano or
sulfonamido;
arloweralkyl or heteroarloweralkyl substituted on the alkyl portion by amino or acylamino;
R^2 and R^7 are hydrogen or lower alkyl;
R^3 is hydrogen
lower alkyl
phenyl lower alkyl
aminomethyl phenyl lower alkyl
hydroxy phenyl lower alkyl
hydroxy lower alkyl
acetylamino lower alkyl
acylamino lower alkyl
amino lower alkyl
dimethylamino lower alkyl
halo lower alkyl
guanidino lower alkyl
imidazolyl lower alkyl
indolyl lower alkyl
mercapto lower alkyl and
loweralkylthio lower alkyl;
R^4 is hydrogen or
lower alkyl;
R^5 is hydrogen
lower alkyl
phenyl
phenyl lower alkyl
hydroxy phenyl lower alkyl
hydroxy lower alkyl
amino lower alkyl
guanidino lower alkyl
imidazolyl lower alkyl
indolyl lower alkyl
mercapto lower alkyl or
loweralkyl thio lower alkyl;
R^4 and R^5 may be connected together to form an alkylene bridge of from 2 to 4 carbon atoms, an alkylene bridge of from 2 to 3 carbon atoms and one sulphur atom, an alkylene bridge of from 3 to 4 carbon atoms containing a double bond or an alkylene bridge as above, substituted with
hydroxy
lower alkoxy

lower alkyl or
dilower alkyl
and the pharmaceutically acceptable salts thereof wherein said aryl is a member selected from the group consisting of phenyl or naphthyl and said heteroaryl is a member selected from the group consisting of pyridyl, thienyl, furyl, indolyl, benzthienyl, imidazolyl, or thiazolyl.

4,374,830

PLATELET AGGREGATING MATERIAL FROM EQUINE ARTERIAL TISSUE

Morris D. Schneider, Knoxville, Tenn., assignor to Research Corp., New York, N.Y.

Continuation-in-part of Ser. No. 81,974, Oct. 4, 1979, abandoned, which is a continuation of Ser. No. 875,730, Feb. 7, 1978, abandoned. This application Aug. 12, 1981, Ser. No. 292,201

Int. Cl.³ A61K *37/02, 37/12;* **C12P** *21/06;* **C12N** *9/00;* **C07G** *7/00*

U.S. Cl. 424—177 **27 Claims**

1. A method of preparing a hemostatic composition comprising the steps of:

(a) contacting cleaned, homogenized equine arterial tissue with a balanced salt solution to provide an aqueous extract containing extracted collagen material and unextracted arterial tissue, and

(b) separating unextracted arterial tissue from said aqueous mixture to provide an extract containing an arterial collagen material,

said extract being capable of stimulating the aggregation of platelets in plasma or whole blood and containing a proteinaceous hemostatic agent characterized by the ability to enhance platelet aggregating activities in mammalian blood, being stable for extended periods of time at temperatures as low as −85° C., stable at 56° C. for up to 60 minutes, and when exposed to α-chymotrypsin, losing its platelet aggregating activity when exposed to collagenase at 37° C. or when heated at 100° C. for 15 minutes; containing a product having the following average number of amino acid residues per 1000 total amino acid residue:

Lysine	29.8	Glycine	206.5
Histidine	31.2	Alanine	133.9
Hydroxylysine	4.8	½ Cysteine	13.2
Arginine	43.2	Valine	57.6
Hydroxyproline	20.1	Methionine	14.2
Aspartic Acid	65.4	Isoleucine	26.7
Threonine	38.1	Leucine	52.5
Serine	40.3	Tyrosine	15.3
Glutamic Acid	81.9	Phenylalanine	27.1
Proline	98.2		

19. A hemostatic agent isolatable from equine arterial tissue by extraction with aqueous solutions which is an equine arterial fibrillar collagen capable of stimulating the aggregation of platelets in plasma or whole blood and containing a proteinaceous hemostatic agent characterized by the ability to enhance platelet aggregating activities in mammalian blood, being stable for extended periods of time at temperatures as low as −85° C., stable at 56° C. for up to 60 minutes, and when exposed to α-chymotrypsin, losing its platelet aggregating activity when exposed to collagenase at 37° C. or when heated at 100° C. for 15 minutes; containing a product having the following average number of amino acid residues per 1000 total amino acid residue:

Lysine	29.8	Glycine	206.5
Histidine	31.2	Alanine	133.9
Hydroxylysine	4.8	½ Cysteine	13.2
Arginine	43.2	Valine	57.6
Hydroxyproline	20.1	Methionine	14.2
Aspartic Acid	65.4	Isoleucine	26.7
Threonine	38.1	Leucine	52.5
Serine	40.3	Tyrosine	15.3
Glutamic Acid	81.9	Phenylalanine	27.1
Proline	98.2		

4,374,831

MODULATORS OF THE COMPLEMENT SYSTEM COMPRISING BIS-GLUCOPYRANOSYL ARYLENE SULFATE DERIVATIVES

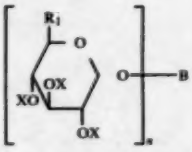
Joseph P. Joseph, Montvale, N.J., and Seymour Bernstein, New City, N.Y., assignors to American Cyanamid Company, Stamford, Conn.

Filed Dec. 28, 1981, Ser. No. 334,939

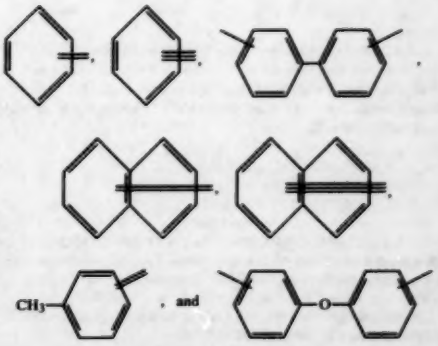
Int. Cl.³ A61K *31/72;* **C07H** *13/12*

U.S. Cl. 424—180 **23 Claims**

1. A compound selected from those of the formula:



wherein X is $—SO_3M$ and M is a nontoxic pharmaceutically acceptable cation salt, wherein the salt forming moiety is selected from the group consisting of alkali metal, alkaline earth metal, aluminum, ammonia and substituted ammonia selected from the group consisting of trialkylamine (C_1–C_6), piperidine, pyrazine, alkanolamine (C_2–C_6) and cycloalkylamine (C_3–C_6); R_1 is selected from the group consisting of CH_2OX, COOH and COONa; n is an integer 2 or 3; and B is an arylene selected from the group consisting of:



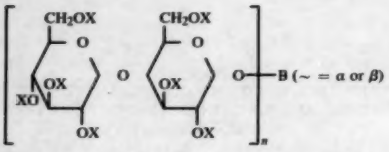
11. A method of modulating the complement system in a body fluid which comprises subjecting said body fluid to the action of an effective complement modulating amount of a pharmaceutically acceptable compound selected from those of the formula of claim 1.

4,374,832
MODULATORS OF THE COMPLEMENT SYSTEM COMPRISING POLYHEXAOSE ARYLENE SULFATE DERIVATIVES

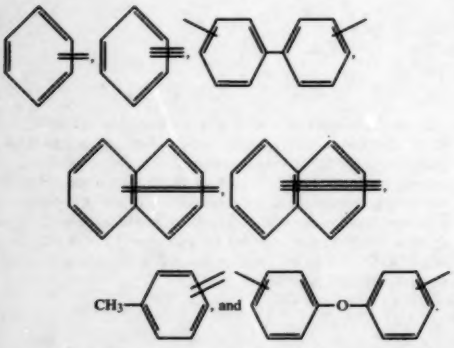
Joseph P. Joseph, Montvale, N.J., and Seymour Bernstein, New City, N.Y., assignors to American Cyanamid Company, Stamford, Conn.

Filed Dec. 28, 1981, Ser. No. 334,940
Int. Cl.³ A61K 31/72; C07H 13/12
U.S. Cl. 424—180 17 Claims

1. A compound selected from those of the formula:



wherein X is —SO_3M and M is a nontoxic pharmaceutically acceptable cation salt, wherein the salt forming moiety is selected from the group consisting of alkali metal, alkaline earth metal, aluminum, ammonia and substituted ammonia selected from the group consisting of trialkylamine (C_1–C_6), piperidine, pyrazine, alkanolamine (C_2–C_6) and cycloalkylamine (C_3–C_6); n is an integer 2 or 3; and B is an arylene selected from the group consisting of:



7. A method of modulating the complement system in a body fluid which comprises subjecting said body fluid to the action of an effective complement modulating amount of a pharmaceutically acceptable compound selected from those of the formula of claim 1.

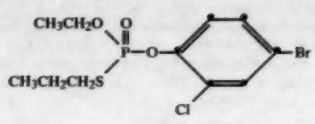
4,374,833
PYRETHROID PESTICIDAL COMPOSITION

John S. Badmin, and Barry J. Mears, both of Sittingbourne, England, assignors to Shell Oil Company, Houston, Tex.

Filed Jul. 24, 1981, Ser. No. 286,508
Claims priority, application United Kingdom, Aug. 20, 1980, 8027082; Jan. 12, 1981, 8100800
Int. Cl.³ A01N 37/34, 57/00
U.S. Cl. 424—225 1 Claim

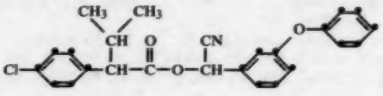
1. A method of combating mites at a locus which comprises applying to the locus a miticidally effective amount of a composition comprising

(a) the compound of formula I



and

(b) the compound of formula II



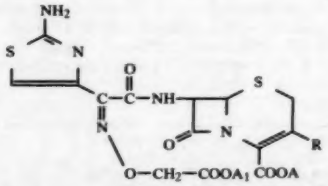
in a ratio of (a) to (b) of 1:80.

4,374,834
NOVEL COMPOUNDS

Rene Heymes, Romainville, and Andre Lutz, Strasbourg, both of France, assignors to Roussel Uclaf, Paris, France

Division of Ser. No. 26,767, Apr. 3, 1979, Pat. No. 4,287,193.
This application Mar. 26, 1981, Ser. No. 247,743
Claims priority, application France, Apr. 7, 1978, 78 10287
Int. Cl.³ A61K 31/545
U.S. Cl. 424—246 9 Claims

1. A compound selected from the group consisting of syn isomers of 7-[2-(2-amino-4-thiazolyl)-2-(carboxymethyloxyimino)-acetamido]-ceph-3-eme-4-carboxylic acid compounds of the formula



wherein R is alkyl of 1 to 3 carbon atoms, A is selected from the group consisting of hydrogen, alkali metal, alkaline earth metal, —NH_4, an easily cleavable ester and a non-toxic, pharmaceutically acceptable organic amine, A_1 is selected from the group consisting of alkyl of 1 to 3 carbon atoms, hydrogen, alkali metal, alkaline earth metal, —NH_4, an easily cleavable ester and a non-toxic, pharmaceutically acceptable organic amine and non-toxic, pharmaceutically acceptable acid addition salts thereof.

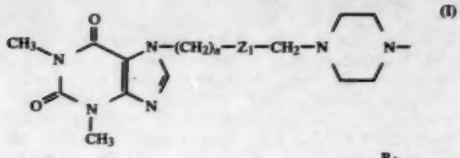
4. An antibiotic composition comprising an antibiotically effective amount of at least one compound of claim 1 and an inert pharmaceutical carrier.

4,374,835
PIPERAZINE DERIVATIVES OF THEOPHYLLINE

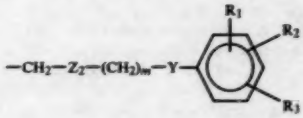
Colette Favier, Neuilly-sur-Seine; Henri Pinhas, Paris; Serge Beranger, Bretigny-sur-Orge, and Jean-Claude Pascal, Cachan, all of France, assignors to Laroche-Navarron, S.A., Puteaux, France

Filed Jan. 12, 1981, Ser. No. 224,710
Claims priority, application United Kingdom, Jan. 31, 1980, 8003212
Int. Cl.³ C07D 473/08; A61K 31/52
U.S. Cl. 424—250 8 Claims

1. A compound of the formula



(I)



and the pharmaceutically acceptable acid addition salts thereof, wherein

Z_1 and Z_2 are each independently selected from the group consisting of CH_2, CHOB and C=O, wherein B is selected from the group consisting of hydrogen and alkanoyl;

Y is oxygen or sulfur;

n is an integer from 0-4 but cannot be zero when Z_1 is CHOB;

m is an integer from 0-4 but cannot be zero when Z_2 is CHOB; and

R_1, R_2 and R_3 are each independently hydrogen, halogen, hydroxy, trifluoromethyl, alkyl or alkoxy.

7. A composition for the treatment of respiratory diseases in mammals which comprises an effective amount of the compound of claim **1** or a pharmaceutically acceptable acid addition salt thereof, in admixture with at least one pharmaceutically acceptable, non-toxic excipient.

4,374,836

ANTISECRETORY HETEROCYCLIC DERIVATIVES, PROCESS FOR THEIR MANUFACTURE AND PHARMACEUTICAL COMPOSITIONS CONTAINING THEM

Tobias O. Yellin, Wallingford, Pa., and Derrick F. Jones, Tytherington, England, assignors to Imperial Chemical Industries Ltd., London, England and ICI Americas Inc., Wilmington, Del.

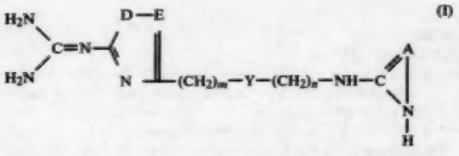
Filed Oct. 10, 1979, Ser. No. 83,479

Claims priority, application United Kingdom, Oct. 16, 1978, 40706/78

Int. Cl.³ A61K *31/505;* **C07D** *417/12*

U.S. Cl. 424—251 **13 Claims**

1. A heterocyclic derivative of the following formula (I):



(I)

in which

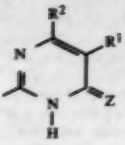
D is an oxygen or sulphur atom or an NH radical;

E is a CH radical or, when D is an oxygen or sulphur atom, E is a nitrogen atom;

Y is a sulphur or oxygen atom, a direct bond or a methylene or sulphinyl radical;

m is 0 to 4 and n is 1 to 4, provided that when Y is a sulphur or oxygen atom or a sulphinyl radical m is 1 to 4, and when Y is an oxygen atom or a sulphinyl radical, n is 2 to 4; and

the ring which includes chain A is of the following formula (II):



(II)

in which

Z is an oxygen or sulphur atom; and

R^1 and R^2, which may be the same or different, are hydrogen atoms or are radicals selected from alkyl radicals of 1 to 6 carbon atoms, and benzyl, naphthylmethyl, 2-phenethyl, 4-phenylbutyl, pyridylmethyl, thiazolylmethyl, thienylmethyl, benzyloxy, pyridylmethoxy and phenoxymethyl radicals each optionally substituted on the aromatic ring system by one to three substitutents selected from halogen atoms and methyl, methoxy, trifluromethyl, dimethylamino, phenyl and phenoxy radicals; and the pharmaceutically-acceptable acid-addition salts thereof.

12. A pharmaceutical composition comprising a heterocyclic derivative as claimed in claim **1** in association with a non-toxic pharmaceutically-acceptable diluent or carrier.

4,374,837

PIPERAZINE DERIVATIVES OF THEOBROMINE

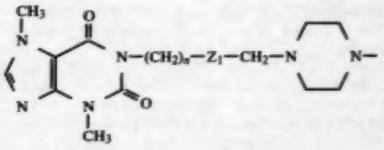
Colette Favier, Neuilly-sur-Seine; Henri Pinhas, Paris; Serge Beranger, Bretigny-sur-Orge, and Jean-Claude Pascal, Cachan, all of France, assignors to Laroche Navarron, S.A., Palo Alto, Calif.

Filed Jul. 31, 1981, Ser. No. 288,847

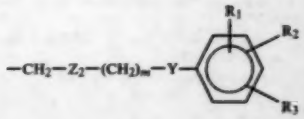
Int. Cl.³ A61K *31/52;* **C07D** *473/10*

U.S. Cl. 424—253 **7 Claims**

1. A compound of the formula



(I)



and the pharmaceutically acceptable acid addition salts thereof, wherein

Z_1 and Z_2 are each independently selected from the group consisting of CH_2, CHOB and C=O, wherein B is selected from the group consisting of hydrogen and alkanoyl;

Y is oxygen or sulfur;

n is an integer from 0-4 but cannot be zero when Z_1 is CHOB;

m is an integer from 1-4 but cannot be zero when Z_2 is CHOB; and

R_1, R_2 and R_3 are each independently hydrogen, halogen, hydroxy, trifluoromethyl, alkyl or alkoxy.

5. A method for treating respiratory diseases in mammals, which method comprises administering to a subject in need of such treatment, an effective amount of, or a pharmaceutical composition containing an effective amount of a compound of claim **1** or a pharmaceutically acceptable acid addition salt thereof.

4,374,838

DIBENZO[a,d]CYCLOOCTEN-5,12-(AND 6,12)-IMINES

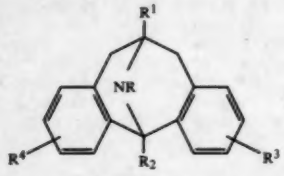
Paul S. Anderson, Lansdale; Marcia E. Christy, Perkasie; Ben E. Evans, Lansdale, and David C. Remy, North Wales, all of Pa., assignors to Merck & Co., Inc., Rahway, N.J.

Division of Ser. No. 80,896, Oct. 1, 1979, Pat. No. 4,329,465, which is a continuation-in-part of Ser. No. 917,044, Jun. 19, 1978, abandoned, which is a continuation-in-part of Ser. No. 834,343, Sep. 19, 1977, abandoned. This application Oct. 22, 1981, Ser. No. 313,900

Int. Cl.³ A61K *31/435*

U.S. Cl. 424—256 **4 Claims**

1. A method of treating anxiety, depression, muscle spasm, convulsions, mixed anxiety-depression, minimal brain dysfunction and extrapyramidal disorders comprising administering to a patient in need of such treatment an effective amount of a compound of structural formula:



or a pharmaceutically acceptable salt thereof, wherein R is hydrogen or C_{1-3}alkyl; R^2 is C_{1-3}alkyl, and R^1, R^3 and R^4 are all hydrogen.

4,374,839

PHARMACOLOGICALLY ACTIVE 1,3-BIS[(2-HETEROCYCLYL-METHYL-THIO)ETHYL)ETHYL)GUANIDINO]ALKANE DERIVATIVES

Graham J. Durant; Charon R. Ganellin, both of Welwyn Garden City, and George S. Sach, Welwyn, all of England, assignors to SmithKline & French Laboratories Limited, Welwyn Garden City, England

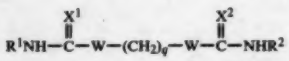
Division of Ser. No. 97,297, Nov. 26, 1979, Pat. No. 4,269,844, which is a division of Ser. No. 948,617, Oct. 4, 1978, Pat. No. 4,210,652, which is a division of Ser. No. 816,420, Jul. 18, 1977, Pat. No. 4,139,624. This application Nov. 24, 1980, Ser. No. 209,452

Claims priority, application United Kingdom, Jul. 28, 1976, 31392/76

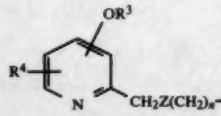
Int. Cl.³ A61K *31/44*; C07D *413/12, 417/12, 401/12*

U.S. Cl. 424—263 **9 Claims**

1. A compound of the formula



wherein X^1 and X^2, which may be the same or different, are each NY where Y is hydrogen, hydroxy or lower alkyl; R^1 is a grouping of the structure



wherein R^3 is lower alkyl or $-(CH_2)_pA$ where p is 2 to 4, and A is hydroxy, lower alkoxy or dimethylamino; R^4 is hydrogen, lower alkyl, lower alkoxy, amino, halogen or methylamino; Z is sulphur or methylene; n is 2 or 3; R^2 has the same scope as R^1 or is a grouping of the structure

$$Het-(CH_2)_{m'}Z'(CH_2)_{n'}-$$

wherein Het is a nitrogen containing 5 or 6 membered heterocyclic ring selected from the group consisting of imidazole, pyridine, thiazole, isothiazole, oxazole, isoxazole, pyrazole, triazole and thiadiazole which is optionally substituted by lower alkyl, hydroxy, halogen or amino; Z' is sulphur or methylene; m' is 0, 1 or 2; n' is 2 or 3 and the sum of m' and n' is 3,4; W is NH, and when X^1 and X^2 are both NH, W may also be sulphur; and q is an integer from 2 to 8 or a pharmaceutically acceptable acid addition salt thereof.

9. A method of inhibiting H-2 histamine receptors which comprises administering orally or parenterally to an animal in need thereof in an effective amount to inhibit said receptors a compound of claim 1.

4,374,840

CERTAIN PHENYL OR PYRIDYL-PROPANOL-AMINES CONTAINING ALKYL-NITRATE MOIETIES

Masami Shiratsuchi, Musashimurayama; Noboru Shimizu, Higashimurayama; Hiromichi Shigyo, Fuchu; Yoshinori Kyotani, Higashiyamato; Hisashi Kunieda, Higashimurayama; Kiyoshi Kawamura, Tokorozawa; Seiichi Sato; Toshihiro Akashi, both of Higashimurayama; Masahiko Nagakura, Sayama; Naotoshi Sawada, Kawasaki, and Yasumi Uchida, Ichikawa, all of Japan, assignors to Kowa Company, Ltd., Aichi, Japan

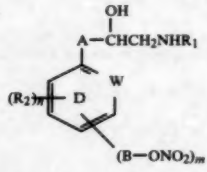
Filed Feb. 11, 1981, Ser. No. 233,643

Claims priority, application Japan, Feb. 13, 1980, 55-15433

Int. Cl.³ A61K *31/44, 31/135*; C07D *213/74*

U.S. Cl. 424—263 **3 Claims**

1. A compound represented by the following formula



wherein

A represents —O—CH_2—

B represents a C_1–C_{11} alkylene group bonded to a carbon atom of the aromatic or heteroaromatic ring D either directly or through an —O— or —S— moiety,

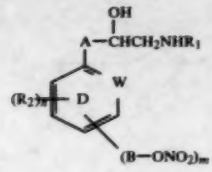
W represents a carbon or nitrogen atom,

R_1 represents a C_3–C_7 alkyl group, a hydroxy-C_1–C_6 alkyl group, or a phenyl- or diphenyl-alkyl group with the alkyl group having 1 to 4 carbon atoms,

R_2 represents hydrogen, halogen, OH, C_1–C_4 alkyl, NO_2, C_1–C_4 alkoxy, acetyl or allyloxy, and when two R_2 groups exist, they may be identical or different,

n represents 1 or 2 and m represents 1 or 2; and a pharmaceutically acceptable acid addition salt thereof.

2. A pharmaceutical composition comprising an effective amount, effective for the treatment of angina, hypertension or arrhythmia of a compound or a pharmaceutically acceptable salt thereof, said compound represented by the following formula



wherein

A represents —O—CH_2—

B represents a C_1–C_{11} alkylene group bonded to a carbon atom of the aromatic or heteroaromatic ring D either directly or through an —O— or —S— moiety,

W represents a carbon or nitrogen atom,

R_1 represents a C_3–C_7 alkyl group, a hydroxy-C_1–C_6 alkyl group, or a phenyl- or diphenyl-alkyl group with the alkyl group having 1 to 4 carbon atoms,

R_2 represents hydrogen, halogen, OH, C_1–C_4 alkyl, NO_2, C_1–C_4 alkoxy, acetyl, or allyloxy, and when two R_2 groups exist, they may be identical or different,

n represents 1 or 2 and m represents 1 or 2; and a pharmaceutically acceptable diluent or carrier.

4,374,841

PYRIDOXINE DERIVATIVES, AND USE IN THERAPEUTICS

Marcel Descamps, Rosieres, Belgium; Marcel Urbain, deceased, late of Waterloo, Belgium; Claire Urbain, legal representative, Waterloo, Belgium; Jacques J. Z. Urbain, legal representative, Lasne, Belgium; Jean P. M. C. Urbain, legal representative, and Nadine C. J. Urbain, legal representative, both of Waterloo, Belgium, assignors to S. A. Labaz N.V., Brussels, Belgium

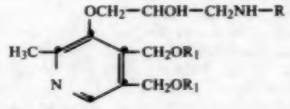
Filed May 11, 1981, Ser. No. 262,449

Claims priority, application United Kingdom, May 19, 1980, 8016516

Int. Cl.³ C07D *213/67*; A61K *31/44*

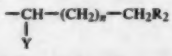
U.S. Cl. 424—263 **7 Claims**

1. A pyridoxine derivative represented by the general formula:



in which: R represents a radical

—CH_2—$(CH_2)_n$—CH_2OR_2 or



in which n represents 0 or 1, X and X_1, which are different, represent hydrogen or methyl, Y represents hydrogen or methyl and R_2 represents a phenyl group non-substituted or bearing one or two substituents selected from the group consisting of fluorine, chlorine and bromine and of the radicals methyl, ethyl, n-propyl, isopropyl and methoxy,

R_1 represents hydrogen as well as a pharmaceutically acceptable acid addition salt thereof.

4,374,842

4,1-BENZOXAZEPINES AND COMPOSITIONS

Kentaro Hirai, Kyoto; Shigeru Matsutani, Sakai; Itsuo Makino, Kobe, and Teruyaki Ishiba, Takatsuki, all of Japan, assignors to Shionogi & Co., Ltd., Osaka, Japan

Filed Apr. 2, 1981, Ser. No. 250,299

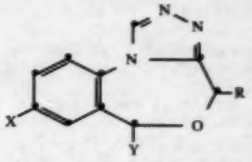
Claims priority, application Japan, Apr. 18, 1980, 55-52185; Sep. 29, 1980, 55-136646

The portion of the term of this patent subsequent to Oct. 27, 1998, has been disclaimed.

Int. Cl.³ A61K *31/55*; C07D *498/14*

U.S. Cl. 424—269 **3 Claims**

1. A member selected from the group consisting of a compound of the formula



wherein

X is halogen,

Y is 2-halophenyl or 4-halophenyl, and

R is hydrogen or C_1 —C_5 alkyl

an a non-toxic pharmaceutically acceptable acid addition salt thereof.

3. A pharmaceutical composition having central nervous system activity comprising an amount of a compound or salt thereof as defined in claim 1 sufficient to achieve central nervous system activity together with a pharmaceutically acceptable carrier, diluent and/or excipient.

4,374,843

2-GUANIDINO-4-HETEROARYLTHIAZOLES

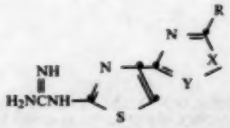
John L. La Mattina, Ledyard, and Christopher A. Lipinski, Waterford, both of Conn., assignors to Pfizer Inc., New York, N.Y.

Continuation-in-part of Ser. No. 196,231, Oct. 14, 1980, abandoned. This application Aug. 20, 1981, Ser. No. 293,574

Int. Cl.³ C07D *417/04*; A61K *31/425*

U.S. Cl. 424—270 **36 Claims**

1. A compound of the formula



and the pharmaceutically acceptable acid addition salts thereof,

wherein X is S or NH; Y is CH, C.CH_3 or N; R is hydrogen, hydroxymethyl, alkyl of 1 to 6 carbon atoms, —$(CH_2)_m$Ar, —NH_2, —NHR_1 or —$NHCOR_1$, wherein R_1 is alkyl of 1 to 6 carbon atoms or —$(CH_2)_m$Ar; n is an integer from 2 to 4; m is zero or an integer from 1 to 4; Ar is phenyl or phenyl monosubstituted with chloro, bromo, fluoro, alkyl of 1 to 3 carbon atoms or alkoxy of 1 to 3 carbon atoms; provided that when Y is N, X is NH and m is other than

zero; and when X is S, R is other than hydroxymethyl, alkyl, or $-(CH_2)_nAr$.

4,374,844

STABLE DERIVATIVES OF (5R,6S,8R)-6-HYDROXYETHYL-2-ETHYLTHIOPENEM-3-CARBOXYLIC ACIDS

Stuart W. Mc Combie, West Orange, N.J., assignor to Schering Corporation, Kenilworth, N.J.

Continuation-in-part of Ser. No. 219,410, Dec. 22, 1980, abandoned, which is a continuation-in-part of Ser. No. 91,610, Nov. 5, 1979, abandoned, which is a continuation-in-part of Ser. No. 62,875, Aug. 1, 1979, abandoned, which is a continuation-in-part of Ser. No. 2,471, Jan. 10, 1979, abandoned. This application Oct. 30, 1981, Ser. No. 316,627

Claims priority, application European Pat. Off., Jan. 7, 1980, 80810004.4

Int. Cl.[3] **C07D** *499/00;* **A61K** *31/425*

U.S. Cl. 424—270 **10 Claims**

1. Sodium (5R,6S,8R)-6-(1-hydroxyethyl)-2-ethylthiopenem-3-carboxylate substantially free from its enantiomer.

4,374,845

1-(7-CARBOXY-2-OCTYNYL)IMIDAZOLE DERIVATIVES, PHARMACEUTICAL COMPOSITIONS AND USE

Tadao Tanouchi, Takatsuki; Masanori Kawamura, Ibaraki, and Masaki Hayashi, Takatsuki, all of Japan, assignors to Kissei Pharmaceutical Co., Osaka and Ono Pharmaceutical Co., Ltd., Nagano, both of, Japan

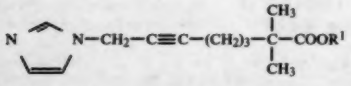
Filed Oct. 22, 1981, Ser. No. 313,847

Claims priority, application Japan, Oct. 22, 1980, 55-146837

Int. Cl.[3] **A61K** *31/415;* **C07D** *233/60*

U.S. Cl. 424—273 R **8 Claims**

1. Imidazole derivatives of the general formula:



(I)

(wherein R^1 represents a hydrogen atom, or straight- or branched-chain alkyl group of 1 to 4 carbon atoms), or pharmaceutically acceptable non-toxic salts thereof.

4,374,846

N-AMINO ALKYL INDOLE COMPOUNDS COMPOSITIONS CONTAINING SAME, AND A METHOD OF USING SAME IN THERAPY OF DISORDERS OF GASTROINTESTINAL MOTILITY

Henning Heinemann; Heinrich-Wilhelm Ohlendorf, both of Hanover, and Klaus-Ulrich Wolf, Haenigsen, all of Fed. Rep. of Germany, assignors to Kali-Chemie Pharma GmbH, Hanover, Fed. Rep. of Germany

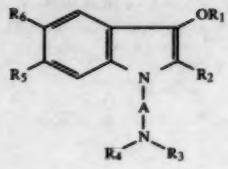
Filed Jul. 24, 1980, Ser. No. 172,023

Claims priority, application Fed. Rep. of Germany, Aug. 2, 1979, 2931323

Int. Cl.[3] **C07D** *209/38;* **A61K** *31/40, 31/435;* **C07D** *401/06*

U.S. Cl. 424—274 **15 Claims**

1. An N-amino alkyl indole compound of Formula I



I

in which

R_1 indicates the hydrogen atom, an alkyl group with 1 to 4 carbon atoms, a phenyl substituted alkyl group with 1 to 4 alkyl carbon atoms, or an acetyl group;

R_2 indicates the hydroxy carbonyl group, an alkoxy carbonyl group with 1 to 4 alkyl carbon atoms, the cyano group, an amino carbonyl group, or a mono- or di-alkyl amino carbonyl group with 1 to 4 alkyl carbon atoms, with the provise that when R_2 is the hydroxy carbonyl group, then R_1 must be another substituent than the hydrogen atom;

A indicates an alkylene group with 2 to 5 carbon atoms;

R_3 and R_4 are the same or different substituents and indicate the hydrogen atom, an alkyl group with 1 to 4 carbon atoms, or R_3 and R_4 being an alkylene group and forming together with the nitrogen atom to which they are attached, a heterocyclic ring with 5 to 7 ring members; and

R_5 and R_6 are same or different and indicate the hydrogen atom, a halogen atom, an alkyl group with 1 to 3 carbon atoms, an alkoxy group with 1 to 3 carbon atoms, or one of the substituents R_5 and R_6 being the trifluoro methyl group or the nitro group while the other one indicates the hydrogen atom;

and the pharmaceutically acceptable acid addition salts of said indole compounds.

15. In a method of treating motility disorders of the gastrointestinal tract comprising administering an effective amount of an N-amino alkyl indole compound of claim 1.

4,374,847

1-CARBOXYALKANOYLINDOLINE-2-CARBOXYLIC ACIDS

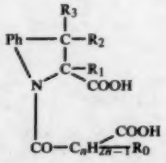
Norbert Gruenfeld, White Plains, N.Y., assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Continuation-in-part of Ser. No. 200,706, Oct. 27, 1980, abandoned. This application Feb. 17, 1981, Ser. No. 235,294

Int. Cl.[3] **A61K** *31/405;* **C07D** *209/26*

U.S. Cl. 424—274 **17 Claims**

1. A 1-carboxy-(alkanoyl or aralkanoyl)-indoline-2-carboxylic acid compound of the formula:



wherein Ph is unsubstituted 1,2-phenylene, or 1,2-phenylene substituted by one to three identical or different members selected from lower alkyl, lower alkoxy, lower alkylenedioxy, hydroxy, halogeno and trifluoromethyl; R_o is hydrogen or HPh; each of R_1, R_2 and R_3 is hydrogen or lower alkyl; and n is an integer from 2 to 8; an amide, mono- or di-lower alkylamide, lower alkyl ester, (amino, mono- or di-lower alkylamino, carboxy or lower carbalkoxy)-lower alkyl ester, or a pharmaceutically acceptable salt thereof.

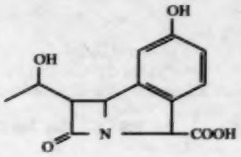
4,374,848

6-(1-HYDROXYETHYL)CYCLONOCARDICIN

Burton G. Christensen, Cliffside Park; James V. Heck, Fanwood, and Michael J. Szymonifka, Rahway, all of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

Filed Sep. 14, 1981, Ser. No. 301,544
Int. Cl.³ A61K 31/40; C07D 487/14
U.S. Cl. 424—274 3 Claims

1. A compound of the structure:



and the pharmaceutically acceptable salts and esters.

2. An antibiotic method of treatment comprising administering a therapeutically effective amount of a compound according to claim 1.

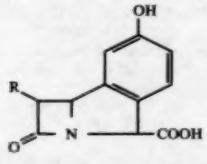
4,374,849

6-AMIDOCYCLONOCARDICINS

Burton G. Christensen, Cliffside Park, and James V. Heck, Fanwood, both of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

Filed Sep. 14, 1981, Ser. No. 301,668
Int. Cl.³ A61K 31/40; C07D 487/14
U.S. Cl. 424—274 4 Claims

1. A compound of the formula:



and the pharmaceutically acceptable salts and esters thereof, wherein R is NHR^1, R^1 is hydrogen, or acyl.

3. An antibiotic method of treatment comprising administering a therapeutically effective amount of a compound according to claim 1.

4,374,850

METHOD OF CONTROLLING PARASITIC TICKS

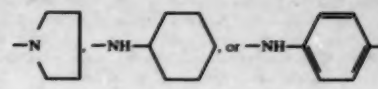
LaWanda M. Hunt, Kerrville, Tex.; Malcolm J. Thompson, Baltimore, and William E. Robbins, Silver Spring, both of Md., assignors to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Division of Ser. No. 134,008, Mar. 26, 1980, Pat. No. 4,310,547.
This application Dec. 3, 1981, Ser. No. 326,996
Int. Cl.³ A01N 33/02, 43/36
U.S. Cl. 424—274 2 Claims

1. A method of controlling parasitic ticks which attack animals comprising administering to said animal in need of treatment a systemically effective amount against said ticks of a compound of the formula

$$CH_3(CH_2)_y—A$$

wherein y is an integer from 8 to 12 and A is



4,374,851

METHOD OF CONTROLLING PARASITIC TICKS

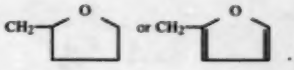
LaWanda M. Hunt, Kerrville, Tex.; Malcolm J. Thompson, Baltimore, and William E. Robbins, Silver Spring, both of Md., assignors to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Division of Ser. No. 134,008, Mar. 26, 1980, Pat. No. 4,310,547.
This application Dec. 3, 1981, Ser. No. 326,995
Int. Cl.³ A01N 43/08
U.S. Cl. 424—285 2 Claims

1. A method of controlling parasitic ticks which attack animals comprising administering to said animal in need of treatment a systemically effective amount against said ticks of a compound of the formula

$$CH_3(CH_2)_yNH\text{-}A$$

wherein y is an integer from 9 to 13 and A is



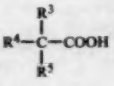
4,374,852

ANTI-FUNGAL COMPOSITIONS EMPLOYING METAL SALTS OF CARBOXYLIC ACIDS

Edward A. Hilditch, Frome; Robert E. Hambling, Warminster; Colin R. Sparks, and David A. Walker, both of Frome, all of England, assignors to Cuprinol Limited, Somerset, England

Continuation of Ser. No. 36,271, May 4, 1979, abandoned. This application Oct. 30, 1980, Ser. No. 202,216
Claims priority, application United Kingdom, May 5, 1978, 18026/78
Int. Cl.³ A01N 55/02
U.S. Cl. 424—289 2 Claims

1. A fungicidal composition comprising a mixture of:
(a) a zinc salt of isononanoic acid and
(b) a zinc salt of a mixture of tertiary saturated acyclic carboxylic acids which acids have the formula



wherein
R^3, R^4 and R^5 represent an alkyl group which together contain about 8 carbon atoms, the weight ratio of zinc salt of isononanoic to zinc salt of a said mixture of tertiary saturated acyclic carboxylic acids being 75:25 to 25:75.

4,374,853

METHOD FOR CONTROLLING ECTOPARASITES

Lester J. Workman, P.O. Box 5547, Sarasota, Fla. 33579

Filed Mar. 31, 1981, Ser. No. 249,696
Int. Cl.³ A01N 41/02; A61K 31/255, 31/14
U.S. Cl. 424—303 9 Claims

1. A method of killing ectoparasites on warm blooded animals comprising: (1) applying to said animal an insecticidally effective amount of a composition consisting essentially of an

aqueous alcohol solution containing at least one compatible, insecticidally effective surface active wetting agent incorporated therein, (2) allowing the thus applied composition to remain in contact with the animal's skin and fur for a period of time sufficient to kill the parasites contained therein, and thereafter (3) removing the composition and killed parasites.

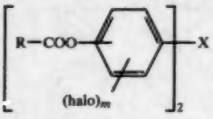
4,374,854

FUNGICIDAL SULFUR-CONTAINING PHENYL ESTERS AND MIXTURES THEREOF

Bruce M. Resnick, West Paterson, N.J., assignor to GAF Corporation, New York, N.Y.

Filed Apr. 3, 1981, Ser. No. 250,809
Int. Cl.³ A61N 37/02, 37/06, 41/02
U.S. Cl. 424—311 10 Claims

1. The method of inhibiting growth of fungi which comprises exposing said fungi to a growth inhibiting quantity of a compound having the formula



wherein X is —S—, —SS—, —SO—, $—SO_2—$ or $—SO_3—$ m has a value of from 0 to 2; halo is fluorine, chlorine or bromine and R is a radical having not more than 4 carbon atoms selected from the group consisting of alkenyl, haloalkenyl and haloalkyl; and mixtures of said compounds.

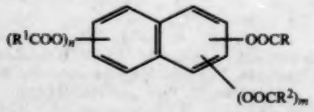
4,374,855

FUNGICIDAL NAPHTHYLENE DIESTERS AND MIXTURES THEREOF

Bruce M. Resnick, West Paterson, N.J., assignor to GAF Corporation, New York, N.Y.

Filed Apr. 3, 1981, Ser. No. 250,824
Int. Cl.³ A01N 37/02, 37/06
U.S. Cl. 424—313 8 Claims

1. The method of inhibiting growth of plant pathogenic fungi which comprises exposing said fungi to a growth inhibiting quantity of a compound having the formula



wherein R, R^1 and R^2 are each independently a radical having not more than 4 carbon atoms selected from the group consisting of alkenyl, haloalkenyl and haloalkyl; either m or n has a value of 1 and the remaining subscript is zero and mixtures of said compounds.

4,374,856

LIVER CYTOPROTECTION USING PGE'S

Mary J. Ruwart, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Filed Sep. 10, 1980, Ser. No. 185,837
Int. Cl.³ A61K 31/19, 31/215
U.S. Cl. 424—317 7 Claims

1. A method for the treatment or prevention of a hepatic disease characterized by glutamic pyruvic transaminase (SGPT) activity of greater than 50 international units in a mammal suffering from or particularly susceptible to the development of said disease which comprises:

systemically or orally administering to said mammal an amount of a hepatocytoprotective PGE-type prostaglandin effective to treat or prevent said disease.

4,374,857

METHOD OF INHIBITING L-TRYPTOPHAN TO SERUM ALBUMIN BINDING

Jen C. Hsia, Concord, Canada, assignor to Her Majesty the Queen in right of Canada, as represented by the Minister of National Defence, Ottawa, Canada

Filed Jan. 25, 1982, Ser. No. 342,236
Int. Cl.³ A61K 31/19
U.S. Cl. 424—317 11 Claims

1. A method of inhibiting L-tryptophan to serum albumin binding in blood or a blood fraction fluid containing L-tryptophan and serum albumin, comprising adding to the fluid cisparinaric acid in a molar ratio to serum albumin of about 0.5:1 to 4.0:1.

4,374,858

ASPARTAME SWEETENED CHEWING GUM OF IMPROVED SWEETNESS STABILITY

Michael Glass, Flushing, and Theresa Cea, Brooklyn, both of N.Y., assignors to Warner-Lambert Company, Morris Plains, N.J.

Continuation-in-part of Ser. No. 81,995, Oct. 4, 1979, abandoned. This application Mar. 3, 1981, Ser. No. 239,937
Int. Cl.³ A23G 3/30; A23L 1/22
U.S. Cl. 426—5 6 Claims

1. A method for improving the sweetness stability of an aspartame sweetened chewing gum composition which comprises applying onto the surface of the chewing gun piece a dusting of a material comprising aspartame.

4,374,859

METHOD FOR REDUCING FUSEL OIL IN ALCOHOLIC BEVERAGES AND YEAST STRAIN USEFUL IN THAT METHOD

Ralph E. Kunkee; S. Richard Snow, both of Davis, and Craig Rous, Lodi, all of Calif., assignors to The Regents of The University of California, Berkeley, Calif.

Filed Jul. 7, 1980, Ser. No. 166,546

Int. Cl.³ C12G 3/12; C12P 7/06; C12N 15/00, 1/18

U.S. Cl. 426—14 10 Claims

1. A method for producing ethanolic fermentation products of low fusel oil content, comprising:

fermenting a nutrient medium having a fermentable carbohydrate substrate with a diploid mutant of a Saccharomyces or a Torulaspora species, which has a reduced ability to produce fusel oil during the fermenting, said fusel oil being selected from a group consisting of n-propyl, isobutyl, optically active amyl, and isoamyl alcohols, said microorganism having the ability to produce a fermentation product having an ethanol content of at least 8%.

8. A biologically pure culture of a diploid microorganism of the genus Saccharomyces or Torulspora characterized by having capabilities comprising:

fermenting, under optimal conditions, a carbohydrate substrate to a fermentation product having at least 8% by volume of ethanol and having a weight ratio of isoamyl alcohol to ethanol of no more than about 1×10^{-3}.

4,374,860

PROCESS FOR THE PRODUCTION OF A READILY WATER MISCIBLE POWDER FORM AMYLACEOUS FOOD PRODUCT

Rupert J. Gasser, and Ernest Badertscher, both of Orbe, Switzerland, assignors to Societe D'Assistance Technique Pour Produits Nestle S.A., Lausanne, Switzerland

Filed Dec. 3, 1980, Ser. No. 212,531

Claims priority, application Switzerland, Dec. 19, 1979, 11246/79

Int. Cl.³ A23L 1/10

U.S. Cl. 426—28 14 Claims

1. A process for the production of a readily water-miscible powder-form amylaceous food product which comprises preparing a first mixture of amylaceous material and water, cooking the mixture to cause gelatinization of the amylaceous material and liquefying it by enzymatic hydrolysis, preparing a second mixture having a dry matter content of from 35% to 45% by weight of additional amylaceous material, water and at least 40% by weight of the first liquefied mixture, cooking the mixture to cause gelatinization of the additional amylaceous material, liquefying it by enzymatic hydrolysis and spray drying at least part thereof.

4,374,861

LACTOSE-REDUCED ICE CREAM AND PROCESS FOR THE PRODUCTION THEREOF

Jan Trzecieski, Naerum, Denmark, assignor to Kirk Chemicals A/S, Troeroed, Denmark

Filed May 6, 1981, Ser. No. 261,005

Claims priority, application Denmark, May 22, 1980, 2234/80

Int. Cl.³ A23G 9/00; A23C 9/12

U.S. Cl. 426—42 5 Claims

1. A process for the production of ice cream and milk ice cream which per 100 parts by weight of the ice cream comprises mixing 4–10 parts of lactose and 4–10 parts of milk solids non-fat, with lactase, sugars, stabilizer, emulsifier and water, then holding the resulting mixture under conditions suited to enzymatic hydrolysis of lactose until at least about 50% of the lactose in the mixture has been hydrolyzed, thereafter adding 3–12.5 parts of edible fat, the lactase, sugars, stabilizer, emulsifier and water being the balance by weight of said hundred parts, then pasteurizing followed by homogenizing and subsequently freezing and thereafter hardening.

4,374,862

Patent Not Issued For This Number

4,374,863

COMPOSITIONS AND METHODS FOR PROVIDING NONADHERENT DOUGH FOR BAKED GOODS

Frances H. Savage, Lawrenceburg, Ind., assignor to The Procter & Gamble Co., Cincinnati, Ohio

Filed Mar. 2, 1981, Ser. No. 239,766

Int. Cl.³ A21D 13/00

U.S. Cl. 426—553 42 Claims

1. A nonadherent cookie dough composition, comprising: (a) sugar; (b) flour; (c) shortening; (d) 15–60%, by weight of the shortening, of water; and (e) sufficient emulsifier active at dough mixing temperatures to render the dough system shortening-continuous.

4,374,864

SOLUBLE COFFEE PROCESS

Willi Hufnagel, Ludwigsburg, Fed. Rep. of Germany; Maurice Blanc, Morges, and Walter Balimann, Orbe, both of Switzerland, assignors to Societe D'Assistance Technique pour Produits Nestle S.A., Lausanne, Switzerland

Filed Apr. 8, 1981, Ser. No. 252,200

Int. Cl.³ A23F 5/26, 5/44

U.S. Cl. 426—594 8 Claims

1. A process for forming a vegetable extract, in the absence of a stripping step prior to extraction, in a system comprising a series of cells containing coffee and coffee substitute, by contacting progressively fresher vegetable material countercurrently with an extraction liquid which enters an inlet cell so that the temperature of the inlet cell is in the range of from about 140° C. to 190° C. and is withdrawn in batches from an outlet cell such that the temperature of the outlet cell is in the range of from about 80° C. to 107° C. wherein during or after each draw-off the pair of cells containing the most exhausted vegetable material is disconnected from the system for discharge and reloading and after each draw-off a pair of cells with fresh loads of coffee and coffee substitute is added to the system so that the outlet cell is the second in series and contains the majority of coffee of the pair and wherein the pair of cells containing fresh loads of coffee and coffee substitute contains from about 40 to 80% by weight of coffee and the outlet cell and each succeeding alternate cell contains the majority of coffee of the pair with 70% to 95% by weight of the total coffee present in the pair of cells.

4,374,865

ORANGE JUICE CONCENTRATE

Rudolf G. Strobel, Cincinnati, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

Continuation-in-part of Ser. No. 171,057, Jul. 22, 1980, abandoned. This application Jul. 13, 1981, Ser. No. 282,830

Int. Cl.³ A23L 2/14, 2/12

U.S. Cl. 426—599 22 Claims

1. A natural orange juice concentrate prepared from orange juice, said concentrate comprising:

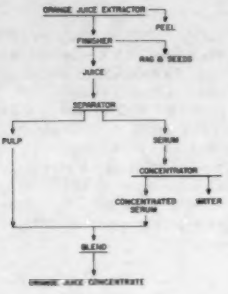
(1) at least 35% total solids, originally present in the juice, comprising pulp, nonvolatile compounds, and volatile compounds, the balance being water;

(2) two of said volatile compounds being ethyl butyrate and limonene;

(3) at least 0.1% of said volatile compounds being ethyl butyrate;

(4) the proportion of said ethyl butyrate to said limonene being in the range of about 0.0015:1 to about 0.3:1;

(5) said volatile compounds comprising a low boiling fraction and a high boiling fraction, the ratio of the low boiling fraction to the high boiling fraction being at least about 4:1;



the amounts and proportions of said volatile compounds are determined by a gas chromatographic analysis of the headspace volatile compounds released from a sample of orange juice, said sample having a temperature of 40° C.

4,374,866

METHOD OF MANUFACTURING CORRECTION FILTER FOR EXPOSING SCREENS OF COLOR-PICTURE TUBES

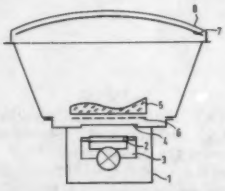
Nadezda Blahna, Lichtenwald, and Bruno Fischer, Esslingen, both of Fed. Rep. of Germany, assignors to International Standard Electric Corporation, New York, N.Y.

Filed Jul. 15, 1981, Ser. No. 283,327

Claims priority, application Fed. Rep. of Germany, Jul. 22, 1980, 3027704

Int. Cl.³ B05D *1/02;* B05B *12/06*

U.S. Cl. 427—10 **13 Claims**



1. A method of manufacturing a correction filter of the type that has a light-absorbing transmission pattern for generating, during the photochemical manufacture of the screen of a color-picture tube, a predetermined exposure intensity distribution over an area, said transmission pattern being formed by the step of:

applying to a transparent support a distribution of predominantly opaque spots formed by solidified droplets having a concentration profile chosen in accordance with the predetermined intensity distribution and achieved by using stencils.

4,374,867

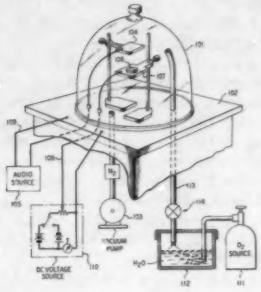
METHOD OF GROWING OXIDE LAYER ON INDIUM GALLIUM ARSENIDE

Robert E. Nahory, Lincroft, and Benjamin Tell, Aberdeen, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Nov. 6, 1981, Ser. No. 318,803

Int. Cl.³ B05D *3/14, 5/12, 7/24*

U.S. Cl. 427—38 **6 Claims**



1. In a process for growing an oxide on an epitaxial layer consisting primarily of indium, gallium and arsenic by exposing the layer to a plasma of oxygen, the step of exposing the layer to water vapor during the growth of the oxide.

4,374,868

METHOD FOR PRODUCING PRINTED CIRCUIT BOARDS WITH PUNCHED HOLES HAVING METALLIZED WALLS

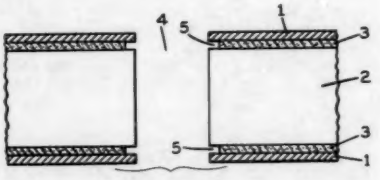
Fritz Stahl, Tonisvorst, and Horst Steffen, Geldern-Pont, both of Fed. Rep. of Germany, assignors to Kollmorgen Technologies Corporation, Dallas, Tex.

Filed Mar. 2, 1981, Ser. No. 239,385

Claims priority, application Fed. Rep. of Germany, Mar. 4, 1980, 3008143

Int. Cl.³ H05K *3/18, 3/42*

U.S. Cl. 427—97 **4 Claims**



1. A method for producing printed circuit boards with holes having metallized walls, in the course of which method metallic coating of the hole walls and the circuit pattern are produced by means of currentless metal precipitation alone or in combination with subsequent galvanic metal deposition, and in which method the initial material is a substrate suitable for the manufacture of printed circuit boards, with the surface of said substrate being provided with an adhesive coating temporarily masked by a metal or plastic foil and forming a base material, characterized by the steps of providing the base material with holes having walls to be metallized; subsequently subjecting the base material with the holes to an etching solution suitable for removing the adhesive coating exposed on the holes without substantially attacking the masking foil; continuing the treatment with said etching solution until there is removed not

only any burr or bead of the adhesive coating formed in the production of the holes but, to a limited extent, also the adhesive coating itself around the hole, starting from the edges of the holes and proceeding from the edges beneath the masking foil and forming a recess in the adhesive around the holes and beneath the masking foil; removing the masking foil from the etching solution treated base material; and, treating said treated base material with said masking foil removed with an electroless metal deposition solution to deposit on said base material surface around said holes from which said adhesive coating has been removed and on the walls of said holes a metal deposit.

4,374,869

SELECTIVE METAL ETCH TECHNIQUE

John K. Dorey II, Ewing Township, Mercer County, N.J., and James T. Huneke, Lower Makefield Township, Bucks County, Pa., assignors to Western Electric Company, Inc., New York, N.Y.

Filed Jan. 18, 1982, Ser. No. 339,949
Int. Cl.³ H05K *3/40*
U.S. Cl. 427—97 **9 Claims**

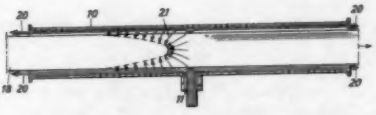
1. A method of selectively etching a pattern in a substrate by magnetically holding a magnetic, etch resistant mask over the substrate and applying an etchant material over the mask and substrate, and prior to etching, applying a sealant between the mask and substrate which sealant is at least partially soluble in the etchant and is capable of preventing etchant from seeping under the mask when the mask is magnetically held in place.

4,374,870

METHOD OF IMPREGNATING A CABLE

Kurt K. Sandgren, Grödinge, and Hans V. L. Selving, Skärholmen, both of Sweden, assignors to Telefonaktiebolaget L M Ericsson, Stockholm, Sweden

Continuation of Ser. No. 812,567, Jul. 5, 1977, abandoned, which is a continuation of Ser. No. 674,612, Apr. 7, 1976, abandoned, which is a continuation of Ser. No. 496,032, Apr. 9, 1974, abandoned. This application Feb. 22, 1979, Ser. No. 13,979
Claims priority, application Sweden, Sep. 14, 1973, 73125643
Int. Cl.³ B05D *5/12*
U.S. Cl. 427—120 **7 Claims**



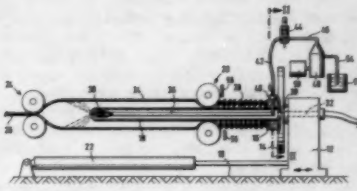
1. A method of impregnating a cable with water impenetrable and water repellant sealing material, the cable comprising a plurality of conductors having a band thereon which permits inward passage of said sealing material under pressure in flowable form said method comprising passing the cable axially through a pipe having open ends, the pipe and cable forming an annular gap along the length of the pipe which gap is between 1 and 3 mm in thickness and is relatively thin compared to the diameter of the cable, said gap being formed uniformly along the length of the pipe, said gap extending to the open ends of the pipe, heating the sealing material to a temperature to render the same flowable, injecting the heated sealing material under pressure into said pipe at an intermediate position between the open ends thereof to cause part of said sealing material to flow inwardly into said cable while the remainder of the sealing material travels axially along the cable in said gap in opposite directions and freely flows axially outwards from the gap at the ends of the pipe, said sealing material undergoing cooling in the cable to form a barrier against penetration of water.

4,374,871

PROCEDURE AND DEVICE FOR OILING THE INSIDE OF TUBULAR CASINGS

Fritz K. Steinbis, Gross-Gerau, Fed. Rep. of Germany, assignor to Gunter Kollross, Fed. Rep. of Germany

Filed Jun. 1, 1981, Ser. No. 268,549
Claims priority, application Fed. Rep. of Germany, May 31, 1980, 3020764
Int. Cl.³ B05B *3/14*; B05D *7/22, 1/02, 5/08*
U.S. Cl. 427—236 **8 Claims**



1. A method of shirring and lubricating a tubular cellulose casing utilizing at least two hollow shirring mandrels mounted to a turret device, said method comprising the steps of:

1. Simultaneously inserting and moving one of said mandrels from a third predetermined position into said tubular casing and into a shirring tool to a predetermined second position;
2. inflating said tubular casing being held on said one of said shirring mandrels between a sealed joint and said shirring tool;
3. simultaneously ejecting a lubricating oil mist from said one of said mandrels onto the inside of said tubular casing as one of said mandrels is advanced to a predetermined first position adjacent said sealed joint;
4. activating said shirring tool and continuously applying a shirring force while sequentially moving said one of said mandrels from said predetermined first position toward said predetermined second position, such that a shirred strand is built up on said one of said mandrels;
5. retracting said one of said mandrels from said shirring tool to said predetermined position;
6. severing said shirred strand formed on the mandrel from the tubular casing;
7. activate said turret device to rotate said turret device such that the other of said at least two mandrels is rotated in alignment with said shirring tool and said tubular casing; and

repeat steps 1 through 7.

6. An apparatus for shirring tubular cellulose casings, said apparatus comprising:

a base member;
a pedestal member mounted to said base member;
a rotatable turret disc member mounted to said pedestal member for rotatable movement relative to said pedestal member from a first predetermined position to a second predetermined position;
at least two hollow mandrels mounted to said turret disc member in spaced relationship and for movement with said turret disc member;
means for ejecting a lubricating fluid from said at least two hollow mandrels, said ejecting means being mounted in spaced relationship to said hollow mandrels and communicating with said hollow mandrels;
passage means for delivering a gaseous fluid to said at least two hollow mandrels, said passage means being mounted in said pedestal and turret disc member;
means for shirring said tubular casing mounted to said base member in spaced relationship to one of said two hollow mandrels when said turret disc member is at said first predetermined position; and
means for linearly moving said pedestal member relative to

said shirring means such that said one of said two hollow mandrels is sequentially moved from a third predetermined position to a first predetermined position communicating with said shirring means to move said one of said mandrels into said tubular casing to said first predetermined position, said ejecting means lubricating said tubular casing as said one of said mandrels moves from said third predetermined position to said first predetermined position, said pedestal moving means further moving said one of said mandrels from said first predetermined position to a second predetermined position within said shirring means whereby said shirring means communicates with said tubular casing and said one of said mandrels to build up a shirred strand of lubricated tubular casing on said one of said mandrels, said shirring means terminating communication with said tubular casing when said one of said mandrels reaches said second predetermined position; said moving means further moving said one of said mandrels with said shirred strand of tubular casing from said second predetermined position to said third predetermined position;

means for severing said tubular casing on said one of said mandrels when said pedestal moving has moved said one of said mandrel to said third predetermined position;

means for rotatably moving said turret disc member from a first predetermined position to a second predetermined position, said first predetermined position aligning said one of said two hollow mandrels with said shirring means, said second predetermined position aligning the other of said two hollow mandrels with said shirring means; and

means for mounting said shirring means to said base member in spaced relationship to said at least two hollow mandrels.

4,374,872

CASEIN COATINGS FOR LEATHER INSOLUBILIZED WITH ALKOXY ALKYL UREAS

Guenter Eckert, Limburgerhof; Lothar Wuertele, Ludwigshafen; Harro Petersen, Frankenthal; Ulrich Goeckel, and Kurt Fischer, both of Ludwigshafen, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Filed Jul. 8, 1981, Ser. No. 281,489

Claims priority, application Fed. Rep. of Germany, Jul. 16, 1980, 3026863

Int. Cl.³ B05D *3/04*

U.S. Cl. 427—338 **6 Claims**

1. A process for finishing leather and improving the wet abrasion resistance thereof comprising:

(A) applying a coating to said leather with an aqueous coating composition consisting essentially of a mixture of casein and an alkoxy alkyl urea,

(B) thereafter drying said coating and applying an acid catalyst thereto, and thereafter

(C) drying, pressing, and curing said coating at ambient temperature to about 160° C.

4,374,873

PROCESS AND INSTALLATION FOR COATING A METALLIC STRIP CONTINUOUSLY WITH A COVERING LAYER

Albert Piedboeuf, Chaudfontaine; Victor Polard, Awans, and Andre Cornez, Liege, all of Belgium, assignors to Phenix Works Societe Anonyme, Flemalle, Belgium

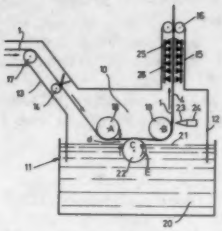
Filed Nov. 4, 1980, Ser. No. 204,083

Claims priority, application Luxembourg, Nov. 7, 1979, 81865

Int. Cl.³ C23C *17/00;* **B05C** *1/08*

U.S. Cl. 427—349 **6 Claims**

1. A process for coating a metallic strip continuously with a coating layer, in which the strip is displaced in a non-oxidizing gaseous atmosphere above and at a small distance from the surface of the coating bath and in contact with a rotatable coating device, rotating said coating device at a predetermined speed in a direction such that its top moves in a direction opposite to the direction of travel of the strip to apply in one step a thick layer of coating material, adjusting the thickness of



the coating layer carried along by the strip downstream of the coating device by applying a jet of a non-oxidizing gas to the strip over the entire width of the strip, and deflecting the strip upwardly about said rotatable coating device.

4,374,874

CORROSION-RESISTANT COATING COMPOSITION CONTAINING HOLLOW MICROBALLOONS

John Blitstein, Chicago, and Donald Kathrein, Northbrook, both of Ill., assignors to T. C. Manufacturing Company, Inc., Evanston, Ill.

Division of Ser. No. 176,470, Aug. 8, 1980, Pat. No. 4,307,142. This application Jun. 8, 1981, Ser. No. 271,437

Int. Cl.³ B05D *3/02;* **C08J** *9/22;* **B32B** *27/00*

U.S. Cl. 427—379 **7 Claims**

1. A method of protecting a substrate from degradation caused by chemical or thermal attack comprising:

coating said substrate with a layer of a fluoroelastomer composition comprising a fluoroelastomer dissolved in a solvent and a plurality of hollow microspheres dispersed in said dissolved fluorelastomer, said microspheres having a particle size in the range of about 2 to about 300 microns, said microspheres encapsulated in said fluoroelastomer composition in an amount of about 3 to about 50 percent by volume of fluoroelastomer plus microspheres;

drying said layer of fluoroelastomer composition to form a first coating layer; and

curing said first layer of fluoroelastomer composition.

4,374,875

WATER-BORNE THERMOPLASTIC POLYHYDROXYETHER COMPOSITIONS

You-Ling Fan, East Brunswick, N.J., assignor to Union Carbide Corporation, Danbury, Conn.

Division of Ser. No. 216,639, Dec. 15, 1980, Pat. No. 4,355,122. This application Dec. 23, 1981, Ser. No. 333,893

Int. Cl.³ B05D *3/02*

U.S. Cl. 427—386 **4 Claims**

1. Method of protecting metallic substrates which comprises depositing a colloidal dispersion of a thermoplastic polyhydroxyether on said substrates followed by baking at elevated temperatures until a clear, continuous, tough film adheres to said substrates, said colloidal dispersion being prepared by:

(1) grafting onto normally solid thermoplastic polyhydroxyether one or more ethylenically unsaturated hydrocarbon monomers having 3 to about 8 carbons at least one of said monomers containing sufficient carboxyl, —COOH, groups to provide from about 1 carboxyl group per 10 monomeric units of thermoplastic polyhydroxyether to about 10 carboxy groups per each monomeric unit of polyhydroxyether; and

(2) blending said grafted thermoplastic polyhydroxyether in a high turbulence field with:

(a) water,

(b) a water-miscible base, and

(c) a water-miscible organic solvent in which said thermoplastic polyhydroxyether is soluble until an ionomer of the grafted thermoplastic polyhydroxyether is obtained as colloidal dispersion, said thermoplastic polyhydroxyether having the general formula:

—D-O-E-O—$_n$

wherein D is the radical residuum of a dihydric phenol, E is an hydroxyl containing radical residuum of an epoxide and n represents the degree of polymerization and is at least 30.

4,374,876

PROCESS FOR THE IMMERSION DEPOSITION OF GOLD

Mohamed F. El-Shazly, Bloomfield; Kenneth D. Baker, Bridgewater, and Yvonne Rymwid, West Paterson, all of N.J., assignors to Occidental Chemical Corporation, Warren, Mich.

Filed Jun. 2, 1981, Ser. No. 269,445
Int. Cl.³ C23C 3/02
U.S. Cl. 427—443.1 **8 Claims**

1. A process for electroless plating gold on a substrate which comprises immersing such substrate in an electroless gold plating bath which comprises a trivalent gold complex selected from alkali metal auricyanides and alkali metal auric imides in an amount which is at least sufficient to deposit gold on the substrate up to the maximum solubility of the complex in the bath, and at least one of the following ingredients:

(a) an organic carboxylic acid, and

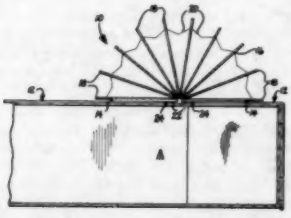
(b) a mineral acid in amounts sufficient to adjust the pH of the bath to from about 0.1 to 6.0 and maintaining such substrate immersed in said bath, without the passage of electrical current therethrough, for a period of time sufficient to form an immersion deposit of gold on said substrate.

4,374,877

AUTOMATICALLY EXPANDING POP-UP DECORATION

Bernard M. Cole, 7 Park Drive East, Old Westbury, N.Y. 11568

Filed Jul. 20, 1981, Ser. No. 285,033
Int. Cl.³ G09F 1/00
U.S. Cl. 428—9 **9 Claims**



1. An automatically expanding pop-up decoration for use in gift-wrapping a package comprising:

(A) an ornament having a pair of opposed end members and an expansible structure pivotally joining said end members together, said end members being capable of pivoting between a substantially face-to-face relationship and a substantially edge-to-edge relationship, said ornament being substantially flat when said end members are in a substantially face-to-face relationship and having a substantially upstanding portion when said end members are in a substantially edge-to-edge relationship; and,

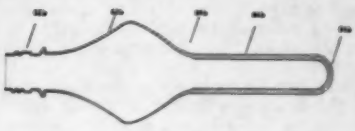
(B) an elasticized cord having the opposite ends thereof secured to said ornament end members, respectively, whereby application of said cord about a package so as to tension said cord ends automatically causes said ornament end members to pivot into the substantially edge-to-edge relationship.

4,374,878

BLANK ADAPTED TO BE BLOWN INTO A CONTAINER AND PROVIDING ORIENTATION OF THE MATERIAL IN THE MOUTH AND NECK AS WELL AS THE BODY

Kjell M. Jakobsen, Skanör, and Claes T. Nilsson, Loddeköpinge, both of Sweden, assignors to PLM Aktiebolag, Malmo, Sweden

Filed May 30, 1980, Ser. No. 154,887
Claims priority, application Sweden, Jun. 11, 1979, 7905045
Int. Cl.³ B29B 3/00
U.S. Cl. 428—35 **8 Claims**



1. A tubular pre-moulding of a thermoplastic of polyester or polyamide type, the pre-molding having substantially uniform initial thickness and comprising a mouth part with adjacent neck sections at one end, a closure at the other end and a tubular section between the two ends, the closed end and the tubular section of the pre-moulding consisting mainly of amorphous unoriented material having a crystallinity of less than 5%, the improvement wherein the mouth part of the pre-moulding, with adjacent neck sections, consists of material which is oriented substantially by a reduction in the thickness of the material while the remainder of the pre-moulding retains its original thickness and, at least in the mouth part, said material has a lower degree of orientation in the circumferential direction of the pre-moulding as compared to the axial direction, the crystallinity of the material in the mouth part being at most 50%, the orientation of the mouth part and adjacent neck sections of the pre-moulding by the thickness reduction providing an increased glass transition temperature Tg in said mouth part and neck sections which is substantially equal to the glass transition temperature of said tubular section when the amorphous material of the tubular section is oriented by a subsequent blowing of the pre-moulding to a container.

4,374,879

GLASS BOTTLE COATING COMPOSITION MADE FROM A SALT OF A POLYAMINE TERMINATED POLYEPOXIDE ADDUCT, AN EPOXY CROSSLINKER, A REACTIVE SILANE, A SURFACTANT AND A NATURAL OR SYNTHETIC WAX

Donald R. Roberts, Crestwood, Ky.; Gina R. Kritchevsky, both of Scotch Plains, and Martin J. Hannon, Madison, both of N.J., assignors to Celanese Corporation, New York, N.Y.

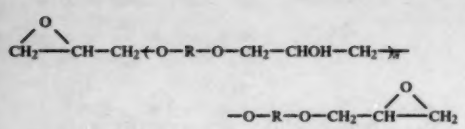
Filed Feb. 2, 1981, Ser. No. 230,976
Int. Cl.³ C08L 63/00; B65D 1/02
U.S. Cl. 428—35 **8 Claims**

1. A multi composition which when the components are mixed forms a thermosetting curable composition capable of rendering glass surfaces scratch resistant, blush resistant and lubricious when applied as a coating on said glass surfaces which comprises:

(A) as a first component, the solution of:

(1) an acid salt of a polyamine terminated polyepoxide adduct which is the reaction product of

(a) a polyepoxide resin represented by the structural formula:



wherein R is a divalent hydrocarbon radical of a dihydric phenol and the average value of n is from about 2 to about 35 and

(b) a polyamine having at least two amine nitrogen atoms per molecule, at least three reactive amine hydrogen atoms per molecule and no other groups reactive with epoxide groups,

wherein about 1 mol of (b) is reacted with each epoxide equivalent of (a), said adduct having an active amine hydrogen equivalent weight of about 140 to about 1700 and an amine nitrogen equivalent weight of about 140 to about 2600;

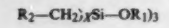
(2) at least one organic aliphatic hydroxyl containing co-solvent having a solubility parameter polar component between about 2.6 and about 3.9 $(cal/cm^3)^{\frac{1}{2}}$ present in an amount of from about 5 to about 45% by weight based on the weight of the polyepoxide-amine adduct and co-solvent; and

(3) water in an amount sufficient to bring the solids content of the mixture to below 40% by weight, based on the weight of adduct, co-solvent and water;

(B) as a second component the mixture of:

(1) at least one polyepoxide crosslinker which is the glycidyl polyether of a polyhydric phenol having an epoxide equivalent weight of from about 150 to about 1000;

(2) at least one silane represented by the structural formula:



wherein R_1 is an alkyl group of from about 1 to about 4 carbons; R_2 is an organo functional radical selected from the group consisting of amino, glycidyl, epoxy cycloaliphatic wherein the cycloaliphatic group contains from about 5 to about 7 carbons, mercapto, ureido, amino alkylimino wherein the alkyl group contains from about 1 to about 6 carbons; and x is an integer of from about 2 to about 5;

(3) at least one surface active agent selected from the group consisting of anionic, non-ionic and cationic characterized by their compatibility with the mixed components of the system; and

(4) optionally at least one co-solvent of the type employed in the first component in an amount of from about 0 to about 90%, by weight, based on the weight of co-solvent and crosslinker; and

(C) as a third component an aqueous emulsion of at least one system compatible natural or synthetic wax emulsified in water with at least one system compatible surfactant of the type employed in the second component, said surfactant and water being present in the third component in at least an amount sufficient to emulsify said wax; and

wherein the amounts of said polyepoxide crosslinker, and silane, present in the second component, the amount of said wax present in the third component, and the combined amount of surface active agent present in the second and third components are such that when the three components of the system are mixed the solids content of said mixture thereof contains (i) the polyepoxide crosslinker in an amount sufficient to achieve an epoxy crosslinker to reactive adduct amine hydrogen equivalent weight ratio of from about 0.25:1.0 to about 1.5:1.0; (ii) the silane in an amount of from about 0.5 to about 10%, by weight, based on the weight of said solids content; (iii) the wax in an amount of from about 1 to about 50%, by weight, based on the weight of said solids content; and (iii) the surface active agent in an amount of from about 1 to about 10%, by weight, based on the weight of said solids content.

4,374,880

SEALING STRIP

Francois Mesnel, Neuilly-sur-Seine, France, assignor to Etablissements Mesnel, Carrieres-sur-Sein, France

Filed Oct. 24, 1980, Ser. No. 200,149

Claims priority, application France, Nov. 13, 1979, 79 27876

Int. Cl.³ E06B 7/16

U.S. Cl. 428—36 **1 Claim**

1. A sealing strip for use with a part of a vehicle, such as a door, the strip comprising:

(a) an elongated mounting portion having an exterior and having a profile shaped as a "U" in a cross section taken transverse to the length of said mounting portion, the "U" of the profile having an open side for engagement with part of the vehicle, a closed side opposite said open side, and two legs extending from said closed side toward said open side, each leg having a free end adjacent said open side;

(b) an essentially tubular, elongated, resilient sealing portion joined with said elongated mounting portion, said mounting and sealing portions both running lengthwise along substantially the same path, said sealing portion being secured to and along one of said legs of said mounting portion, said sealing portion having an exterior, said sealing portion also having a first part which terminates in a first longitudinal edge secured to said one leg at a position adjacent to said closed side and a second part which terminates in a second longitudinal edge secured to said one leg at a position remote from said closed side and yet spaced from said free end of said one leg;

(c) said sealing and mounting portions having at least one curved segment for cooperation with a curved portion of the vehicle and at least one relatively straight segment for cooperation with a relatively straight portion of the vehicle;

(d) an elongated lateral connection bracing at the exteriors of said mounting and sealing portions and extending laterally from a part of said mounting portion adjacent the free end of said one leg to the second part of said sealing portion, said bracing being located on the same side of said mounting portion as said open side of said "U" which defines said cross-sectional profile thereof; said bracing extending lengthwise partially along the lengths of said mounting and sealing portions; said bracing being located along at least said curved segment of said sealing and mounting portions, said bracing, when taken in a direction along the entire length of said sealing and mounting portions, having at least one gap therein with respect to the entire length of said sealing and mounting portions, said gap being located in said relatively straight segment of said sealing and mounting portions;

(e) said bracing comprising a connection arm running longitudinally and extending between said one leg and said tubular sealing portion, said arm including, as a portion thereof, a lateral strip running longitudinally and having spaced weakened longitudinally running sides for breaking segments of said lateral strip away from said arm to effect lengthwise discontinuities in said bracing; and

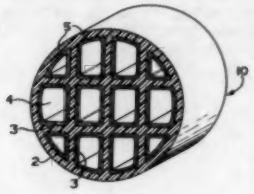
(f) whereby, in practice, undue deformation of said sealing portion in said curved segments is prevented.

4,374,881

HEAT RECOVERABLE CONNECTOR

Stephen R. Hamilton, Ravenna, Ohio, assignor to Eaton Corporation, Cleveland, Ohio

Filed Mar. 24, 1981, Ser. No. 247,027
Int. Cl.³ B32B *1/08*; H02G *3/04*
U.S. Cl. 428—36 **6 Claims**



1. An elongate open-ended connector made from a heat recoverable material having an elastic memory and able to be shrunken by heat from an expanded state to a contracted state to provide an individual protective covering about a plurality of joined articles, said connector in the expanded state comprising, an outer surrounding wall extending along the length of the connector between one end thereof and an opposite end thereof and at least one internal wall extending for at least a portion of the distance along the length of the connector within said outer wall and integrally related therewith that partitions the connector within the outer wall into a plurality of open-ended channels extending between said ends of the connector, said channels having a cross-sectional shape adapted to receive and permit the positioning of the joined articles therewithin, said internal wall having a length thereof sufficient to encapsulate the area of juncture between the respective articles positioned within each of the channels, and said internal wall and said outer wall adapted to contract snugly about the joined articles and thicken without melting to control drift of the joined article towards each other and provide an individual and combined protective covering thereabout of reduced bulk that assures adequate spacing between the joined articles when the connector is contracted by heat.

4,374,882

COMPOSITIONS COMPRISING LOW PRESSURE ETHYLENE POLYMERS AND ALKYLENE-ALKYL ACRYLATE COPOLYMERS; AND SPIRAL WOUND HOSE PRODUCTS FABRICATED THEREFROM

George M. Harlan, Somerville, N.J., assignor to Union Carbide Corporation, Danbury, Conn.

Filed Dec. 18, 1981, Ser. No. 332,276
Int. Cl.³ C08L *23/08, 23/00*
U.S. Cl. 428—36 **8 Claims**

1. A composition comprising a subsequently linear ethylene polymer having a melt index of about 0.1 to about 10.0 and a density of about 0.915 to about 0.935 and in an amount of about 20 to about 90 percent by weight, an alkylene-alkyl acrylate copolymer having a combined alkyl acrylate content of at least about 19 percent by weight and having a melt index of about 0.5 to about 6.0.

4,374,883

PRESSURE-SENSITIVE ADHESIVE TAPE

Louis E. Winslow, Stillwater, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Oct. 15, 1981, Ser. No. 311,553
Int. Cl.³ B32B *7/02, 27/40*; D21H *1/04*
U.S. Cl. 428—40 **7 Claims**

1. Normally tacky and pressure-sensitive adhesive tape having good holding power, resistance to aging and comparatively low cost comprising a sheet backing bearing a composite adhesive stratum comprising a layer of rubbery, compliant polyurethane, and, bonded over the polyurethane layer so as to constitute the outermost surface, a layer of soft, normally tacky and pressure-sensitive adhesive which is immiscible with the polyurethane, the thickness of the polyurethane layer being at least about twice the thickness of the pressure-sensitive adhesive layer, the polyurethane having a 10-second shear-creep compliance of at least 5×10^{-6} cm²/dyne, a 7–10 minute shear rate viscosity of at least 10^6 Pa.s, a 7–10 minute delayed elastic compliance component greater than 50%, and an equilibrium elastic compliance greater than 90%, and the pressure-sensitive adhesive having a 10-second shear creep compliance component of at least 1.5×10^{-6} cm²/dyne, a 7–10 minute shear rate viscosity of at least 3×10^6 Pa.s, and a 7–10 minute delayed elastic compliance component greater than 50%, said tape exhibiting superior adhesive properties to those attainable with tape in which the backing is coated with either the polyurethane alone or the pressure-sensitive adhesive alone.

2. The tape of claim 1 wherein the thickness of the polyurethane layer is at least four times the thickness of each pressure-sensitive adhesive layer.

5. The tape of claim 1 or 2 wherein (a) the sheet backing is a release liner and (b) a layer of soft, normally tacky and pressure-sensitive adhesive is interposed between the liner and the polyurethane layer, thereby providing a relatively inexpensive adhesive transfer tape having excellent holding power and shear properties.

4,374,884

PILE CARPET HAVING A WATER ACTIVATABLE ADHESIVE

John C. Kwok, and Ivan S. Lee, both of Sarnia, Canada, assignors to Polysar Limited, Sarnia, Canada

Filed Dec. 9, 1980, Ser. No. 214,765
Int. Cl.³ B32B *3/02*
U.S. Cl. 428—95 **6 Claims**

1. A tufted carpet having tufts secured in a primary backing, and attached thereto a secondary backing comprising a foam rubber, said secondary backing being uniformly coated on its exposed surface with a dry non-tackey adhesive layer in an amount from about 3.4 to 102 grams by dry weight per square meter, said adhesive being water activatable and having a wet initial tack and adhesive strength less than the delamination strength of the secondary backing, and a dry adhesive strength greater than the delamination strength of the secondary backing, said adhesive layer comprising from about 50 to 99.5 parts by dry weight of a latex of a polymer having a film forming temperature below about 25° C. selected from the group consisting of natural rubber, C_4–C_6 conjugated diolefin containg polymers, acrylic polymers, mixtures thereof and mixtures of vinyl acetate polymers with C_4–C_6 conjugated diolefin containing polymers, and from about 50 to 0.5 parts by dry weight of thickening agent selected from the group consisting of alkali soluble/swellable aqueous emulsion polymers, salts of polyacrylic acid, water soluble starch, water soluble cellulose derivatives, alkali sensitive latexes, and mixtures thereof.

4,374,885
CUSHION MATERIALS AND METHOD OF MAKING SAME

Hisashi Ikeda, Yokohama, and Yuuichi Hosoda, Hamakita, both of Japan, assignors to Ikeda Bussan Co., Ltd., Kanagawa, Japan

Filed Jan. 19, 1981, Ser. No. 226,315
Claims priority, application Japan, Jan. 23, 1980, 55-7248; Feb. 23, 1980, 55-22619[U]; Oct. 1, 1980, 55-137443; Dec. 12, 1980, 55-175497
Int. Cl.³ B32B 3/26
U.S. Cl. 428—160 24 Claims

1. A cushion material, comprising:

a plurality of cushion layers formed with a plurality of polyurethane foam slabs in piles cut in a predetermined form,

form keeping layer means made of bonding agent applied between said plurality of polyurethane foam slabs with its amount partially increased or decreased at a predetermined portion between said polyurethane foam slabs to be solidified in a predetermined cubic form pressure, maintaining said cushion layers in a predetermined cubic form, the surface having a feel of soft polyurethane foam.

12. A cushion material as set forth in claim 1, said polyurethane foam slab being composed of a pair of polyurethane foam slabs profiled at the one side thereof, said profiled faces of said polyurethane foam slabs in pair being applied with a bonding agent, bonded together opposite to each other and compressed together at the same time, thus said bonding agent being solidified to constitute a form keeping layer.

4,374,886
COLOR REGISTERED DECORATIVE LAMINATES

Ram S. Raghava, Ann Arbor, Mich., assignor to Formica Corporation, Cincinnati, Ohio

Continuation-in-part of Ser. No. 46,141, Jun. 6, 1979, abandoned. This application Oct. 30, 1980, Ser. No. 202,108
The portion of the term of this patent subsequent to Mar. 30, 1999, has been disclaimed.
Int. Cl.³ B32B 3/30, 31/20
U.S. Cl. 428—172 9 Claims

1. A heat and pressure laminate assembly consisting essentially of, in superimposed relationship,

(a) a core layer comprised of a self-supporting substrate;

(b) a resin impregnated print layer consisting of an opaque alpha cellulose paper sheet;

(c) a pigmented surface coating of a hydrolyzed polyvinyl alcohol having a degree of hydrolysis equal to or greater than about 99.0 percent of the acetate groups modified melamine-formaldehyde resin wherein the surface coating weight is from about 0.5 to about 20.0 grams per square foot, the amount of fully hydrolyzed polyvinyl alcohol in the surface coating is from about 5 to about 30 percent by weight of the total weight of the melamine-formaldehyde reaction product solids and said pigmented surface coating has a flow sufficient to cause said pigmented surface coating to flow more than said resin impregnating the print layer; and

(d) an embossing press plate having a surface with protuberant and valley areas capable of being impressed into the uppermost surface of said print layer and means for preventing the embossing press plate from sticking to the coated print sheet during lamination.

8. A method for producing a heat-and-pressure consolidated laminate which comprises consolidating the assembly of claim 1 under heat and pressure to thereby effect a lamination of said fibrous sheets together, an embossment of the uppermost of the print sheet and a migration of the pigmented resin from the areas of said embossment corresponding to the protuberant areas of the embossed press plates to the valley areas thereof and thereafter removing said embossing press plate from the resultant laminate so as to produce a dense laminate having embossed areas of contrasting color.

4,374,887
SIGN MAKING APPARATUS

Gregory R. Waldron, West Oneonta, N.Y., assignor to Scott Machine Development Corporation, Walton, N.Y.

Division of Ser. No. 905,748, May 15, 1978, abandoned. This application Apr. 27, 1981, Ser. No. 257,658
Int. Cl.³ B32B 3/00, 7/06
U.S. Cl. 428—195 2 Claims

1. A coordinated plurality of carrier sheets which will assist an operator to make various signs using characters of a plurality of different nominal sizes, having different numbers of rows of characters and different vertical spacings between said rows, with use of a single sheet-positioning apparatus operable to position a sheet in incremental steps of distance d, each of said sheets carrying a plurality of transferable characters each having a baseline, the baselines of the characters of each respective nominal size on any sheet of said plurality of sheets being vertically spaced at integral multiples of said distance d, each of said sheets carrying means defining a reference line across the sheet, each lower-case character of any given nominal size on any of said sheets having its apparent vertical centerline located a vertical distance from the reference line on its associated sheet so that if successive ones of said sheets are installed in said machine with their respective reference lines similarly registered to the machine, the apparent vertical centerlines of the lower-case characters of all nominal sizes lie either on a common line or at an integral multiple of said distance d therefrom.

4,374,888
NONWOVEN LAMINATE FOR RECREATION FABRIC

Stephan R. Bornslaeger, Outagamie County, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis.

Filed Sep. 25, 1981, Ser. No. 305,575
Int. Cl.³ B32B 27/14
U.S. Cl. 428—198 8 Claims

1. A pattern bonded nonwoven fabric having a basis weight in the range of from about 2.5 to 10 oz/yd^2 with permeability, water repellency and flame retardant properties comprising,

a multi-layer structure of thermoplastic polymer nonwoven fabrics including continuous filament outer layers having a basis weight of about 0.5 to 5 oz/yd^2 each, and a microfibrous intermediate layer having a basis weight of about 0.5 to 2.0 oz/yd^2,

wherein the melting points of the thermoplastic polymers used for each layer are similar and wherein the properties

of the fabric result from forming or treating the component layers prior to combination including imparting ultraviolet light radiation resistance to one outer layer and flame retardancy to the other outer layer.

4,374,889

OIL-REPELLENT MICROVOID-IMAGING MATERIAL

Robert P. Arens, St. Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Dec. 7, 1981, Ser. No. 327,768

Int. Cl.³ B41M *5/00*; G01D *15/34*

U.S. Cl. 428—207 **9 Claims**

1. A self-supporting sheet material which is adapted to being provided with markings by the application of a colorless liquid of predetermined volatility, comprising in combination:

a. a self-supporting dark-colored base sheet having a face side and a back side and

b. bonded over each side of said base sheet, a diffusely reflective opaque white to pastel microvoid-containing layer comprising an organic polymer having a refractive index in the range of about 1.3 to 2.2,

c. present at least at the exposed surface of the layer on only the face side of the base sheet, an oleophobic fluorochemical which prevents the microvoids at the face side from being readily penetrated by oil and grease, so that the microvoids at the face side of sheet material can be penetrated and transparentized only by polar liquids or liquids having a low surface tension, such penetr. tion effecting local transparentization of the face side layer to expose the dark-colored base, whereas the microvoids at the back side of the sheet material are readily penetrated by both polar and non-polar liquids having either low surface tension or high surface tension,

whereby potentially transparentizing contamination of the layer on the face side of said sheet material, caused by contact with oil and the like, can be removed by promptly placing the face side layer in contact with the back side layer of another portion of the sheet material, the contaminating liquid being absorbed into the back side layer of the sheet material.

4,374,890

ADHESIVE-SHEET FOR THE REINFORCEMENT OF METAL PLATES AND METHOD OF REINFORCING METAL PLATES

Masato Shimizu; Eishi Asoshina; Takashi Tominaga, and Tadahiro Muguruma, all of Ibaraki, Japan, assignors to Nitto Electric Industrial Co., Ltd., Osaka, Japan

Filed Nov. 25, 1981, Ser. No. 324,939

Claims priority, application Japan, Nov. 27, 1980, 55-167428

Int. Cl.³ B32B *7/02*; B05D *3/02*; B32B *27/38*; C09J *7/02*

U.S. Cl. 428—212 **15 Claims**

1. An adhesive-sheet for the reinforcement of metal plate, comprising a first epoxy resin composition layer and a second epoxy resin composition layer laminated thereon wherein the first epoxy resin composition layer is prepared so that when provided on the metal plate and cured by heating, it has a modulus of elasticity in tension sufficient to increase the stiffness of the metal plate, and the second epoxy resin composition layer is prepared so that when provided on and adhered to the metal plate and cured by heating, it has a modulus of elasticity in tension insufficient to increase the stiffness of the metal plate.

4,374,891

ULTRATHIN POLYMER MEMBRANES

William J. Ward, III, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Division of Ser. No. 536,650, Dec. 26, 1974, Pat. No. 4,279,855, which is a continuation-in-part of Ser. No. 356,514, May 2, 1973. This application Mar. 2, 1981, Ser. No. 239,755

Int. Cl.³ B32B *7/02*

U.S. Cl. 428—220 **2 Claims**

1. A film consisting of a blend of polyphenylene oxide and organopolysiloxane-polycarbonate copolymer exhibiting an oxygen/nitrogen separating factor having a value of at least 4.0, said film containing from about 10 to about 35% by weight of the total blend of organopolysiloxane-polycarbonate copolymer and having a thickness of less than about 200 Å.

4,374,892

MOISTURE RESISTANT INSULATING MICA TAPE COMPRISING A MONOALKOXY TITANATE

Jonathan W. Roberts, Raymond, N.H., assignor to Essex Group, Inc., Fort Wayne, Ind.

Filed Jun. 3, 1981, Ser. No. 270,174

Int. Cl.³ B32B *5/24, 19/04, 19/06, 27/32*

U.S. Cl. 428—233 **7 Claims**

1. An electrical insulation tape comprising a sheet of mica paper impregnated with a B-staged polybutadiene polymer, a woven glass scrim next to the mica paper, a block copolymer sealing layer next to the glass scrim, and a polyethyleneterephthalate sealing layer next to the mica, wherein the improvement comprises:

including about 0.1% to about 0.35% by weight based on the weight of mica present of a monoalkoxy titanate in the mica sheet to improve moisture resistance and dissipation factor.

4,374,893

TEXTILES WITH IMPROVED CONDUCTING PROPERTIES AND PROCESSES FOR THEIR MANUFACTURE

Andre Arsac, Vernaison; Michel Ducarre, Sainte-Foy-les-Lyon; Jean Grosbois, L'Isle Adam, and Thomas Neuer, Charville, all of France, assignors to Rhone-Poulenc-Textile, Paris, France

Filed Jun. 26, 1981, Ser. No. 277,607

Claims priority, application France, Jun. 26, 1980, 80 14286

Int. Cl.³ D04B *1/00*; B05D *5/12*

U.S. Cl. 428—263 **13 Claims**

1. Textiles, preferably yarns and fibers, based on synthetic polymers, with permanent conducting properties, characterised in that they possess, on the surface, a uniform continuous layer consisting of at least 3% of copper sulphide, the composition of which is such that the atomic ratio (Cu/S) is between 1.5 and 2, and of which the ratio (R/R_o) is between 1 and 10, R being the electrical resistance after treatment for 400 hours at 60° C. and a humidity of 70%, and R_o being the initial resistance of the treated textile.

4,374,894

POLYOLEFIN NONWOVENS WITH HIGH WET STRENGTH RETENTION BONDED WITH VINYL CHLORIDE COPOLYMERS

George J. Antlfinger, Avon Lake, Ohio, assignor to The B F Goodrich Company, Akron, Ohio

Filed Nov. 3, 1980, Ser. No. 202,994

Int. Cl.³ B32B *27/30, 27/32*; D04H *1/64, 1/72*

U.S. Cl. 428—288 **5 Claims**

1. A nonwoven fabric having improved wet tensile strength retention comprising polyolefin nonwoven fibers bonded together with a binder selected from the group consisting of

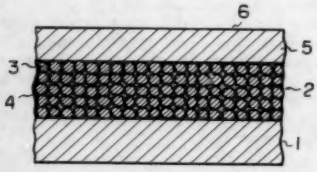
latexes containing polyvinyl chloride wherein vinyl chloride is copolymerized with one or more of copolymerizable monomers selected from the group consisting of vinylidene chloride, α,β-olefinically unsaturated carboxylic acids containing 3 to 5 carbon atoms; monounsaturated dicarboxylic acids containing 4 to 8 carbon atoms; esters of α,β-olefinically unsaturated monocarboxylic and dicarboxylic acids containing 4 to 20 carbon atoms; acrylamides and methacrylamides and their N-alkylol derivatives containing 3 to 20 carbon atoms selected from the group consisting of hydroxyalkyl diacetone acrylamides and methacrylamides, hydroxyalkyl acrylamides and methacrylamides, N-alkylol acrylamides and methacrylamides, and mixtures thereof; vinyl ethers containing 4 to 22 carbon atoms; vinyl ketones containing 3 to 12 carbon atoms; vinyl esters of carboxylic acids containing 4 to 22 carbon atoms; alpha olefins containing 2 to 12 carbon atoms; styrene and styrene derivatives; and mixtures thereof.

4. A method for making nonwoven fabric with improved wet tensile strength retention comprising contacting polyolefin fibers with a binder to adhere said fibers together, said binder is selected from the group consisting of latexes containing polyvinyl chloride wherein vinyl chloride is copolymerized with one or more of copolymerizable monomers selected from the group consisting of vinylidene chloride; α,β-olefinically unsaturated carboxylic acids containing 3 to 5 carbon atoms; monounsaturated dicarboxylic acids containing 4 to 8 carbon atoms; esters of α,β-olefinically unsaturated monocarboxylic and dicarboxylic acids containing 4 to 20 carbon atoms; α,β-olefinically unsaturated nitriles containing 3 to 5 carbon atoms; acrylamides and methacrylamides derived from acrylic and methacrylic acids and their N-alkylol derivatives containing 3 to 20 carbon atoms selected from the group consisting of hydroxyalkyl diacetone acrylamides and methacrylamides, hydroxyalkyl acrylamides and methacrylamides, N-alkylol acrylamides and methacrylamides, and mixtures thereof; vinyl ethers containing 4 to 22 carbon atoms; vinyl esters of carboxylic acids containing 4 to 22 carbon atoms; alpha olefins containing 2 to 12 carbon atoms; styrene and styrene derivatives; and mixtures thereof.

4,374,895
ELECTROSTATIC RECORDING ELEMENT

Tokuro Yasuda, and Keiji Yamauchi, both of Yonago, Japan, assignors to Oji Paper Co., Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 69,556, Aug. 24, 1979, abandoned. This application Jun. 25, 1981, Ser. No. 277,210
Claims priority, application Japan, Aug. 31, 1978, 53-106397; Aug. 31, 1978, 53-106398; Feb. 13, 1979, 54-15346; Feb. 26, 1979, 54-20712; Feb. 27, 1979, 54-21368
Int. Cl.³ B32B 5/16; G01D 15/34
U.S. Cl. 428—328 15 Claims



1. An electrostatic recording element comprising
(a) a substrate comprising paper or a synthetic polymer film;
(b) a conductive layer located on a surface of said substrate and comprising (1) powdered electroconductive zinc oxide which has been doped with a member selected from the group consisting of aluminum, copper and tin, and which has a specific resistivity of from 1×10^{-1} to 1×10^{2} ohm-cm, under a pressure of 150 kg/cm², (2) an organic fluorescent brightening agent in an amount of from 0.1 to 2.0% based on the weight of said electroconductive zinc oxide, and (3) a binding material uniformly mixed with said electroconductive zinc oxide and said organic fluorescent brightening agent; and
(c) a dielectric layer located on said conductive layer and having an electrostatic recording surface.

4,374,896
COATINGS FOR POLYOLEFINIC PRODUCTS AND PRODUCTS COVERED BY SAID COATINGS

Donato Jacobone, Via Borgonuovo, 18 Milan, Italy

Filed Dec. 28, 1978, Ser. No. 973,804
Claims priority, application Italy, Jan. 10, 1978, 19109 A/78
Int. Cl.³ B32B 27/00; C09J 7/02
U.S. Cl. 428—349 4 Claims

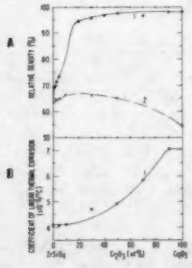
1. A thermosealable coating composition for isotactic polypropylene film products which consists essentially of a solution of a three-component polymeric system as follows:
(a) a first component selected from the group consisting of vinyl copolymer (PVC/PVA) in a relative monomer weight percent ratio between about 70/30% and 90/10%;
(b) a second component selected from the group consisting of polymers and copolymers of acrylic esters and mixtures thereof; and
(c) a third component consisting of a polyester resin obtained by condensation and being present in a weight percent ratio of from about 1-50% of the polymeric system.

4. As new industrial products, thermosealable polypropylene films coated with a composition consisting essentially of a solution of a dry polymeric system comprising:
(a) a first component consisting of a vinyl copolymer (PVC/PVA) in a relative monomer ratio between about 70/30% and 90/10%;
(b) a second component selected from the group consisting of polymers and copolymers of acrylic esters and mixtures thereof; and
(c) a third component consisting of a polyester resin obtained by condensation and being present in a ratio of from about 1-50% of the polymeric system.

4,374,897
CHROMIUM OXIDE-BASED SINTERED BODIES AND PROCESS FOR PRODUCTION THEREOF

Akira Yamaguchi, Kasugai, Japan, assignor to Nippon Chemical Industrial Co., Ltd., Tokyo, Japan

Filed Mar. 4, 1981, Ser. No. 240,436
Claims priority, application Japan, Mar. 4, 1980, 55/26863; Apr. 12, 1980, 55/28375; May 10, 1980, 55/62090
Int. Cl.³ B32B 9/04; C04B 35/56, 35/48, 35/12
U.S. Cl. 428—446 7 Claims



1. A highly densified chromium oxide-based sintered body having a relative density of at least 90% and a linear thermal expansion coefficient of from 2.5×10^{-6}/°C. to 7.2×10^{-6}/°C. produced by heating a compact consisting of chromium oxide

and at least one substance selected from silica (SiO_2), zirconia (ZrO_2), and zircon ($ZrSiO_4$) in a carbon reduction atmosphere wherein the surface of the compact is converted to a carbide during the heating period.

4,374,898

ELASTOMERIC FILM

Tibor G. Mahr, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Jun. 25, 1981, Ser. No. 278,435
Int. Cl.³ B05D 3/06; B32B 9/04, 13/12
U.S. Cl. 428—447 **4 Claims**

1. A process for treating ethylene/vinyl acetate copolymer film containing about 35 to 50 percent copolymerized vinyl acetate by weight, said ethylene/vinyl acetate being cross-linked as a result of being subjected to a 0.5 to 16 megarad dosage of high energy radiation, comprising:

(a) contacting the film with an alcoholic solution, at 20°–80° C., containing at least 0.2 percent of a coupling agent selected from the group consisting of titanate and silane coupling agents so that the coupling agent is bonded to the surface of the film; and then

(b) contacting the film of (a) with an alcoholic slurry containing at least 0.2 percent finely divided mineral particulates so that the mineral particles are bonded to the coupling agent.

3. The product of the process of claim 1.

4,374,899

HARDBOARD TREATING COMPOSITION AND PROCESS FOR FORMING HARDBOARD SURFACES

Salvatore G. Sanfilippo, and James T. White, both of Tuscaloosa, Ala., assignors to Reichhold Chemicals, Incorporated, White Plains, N.Y.

Division of Ser. No. 151,172, May 19, 1980, Pat. No. 4,336,174.
This application May 6, 1982, Ser. No. 375,495
Int. Cl.³ B32B 27/10, 23/08
U.S. Cl. 428—514 **7 Claims**

1. An improved hardboard sheet formed from compressed lignocellulose fiber having outer wet surfaces treated with a storage-stable aqueous polymeric compositon that is cured during fiber compaction by a forming press that maintains the sheets under heat and pressure, said aqueous composition being (A) a homogeneous three-component system containing, on a dry solids basis, a miscible mixture of from about 40 to about 60 percent by weight of a water-soluble melamine-formaldehyde copolymer, from about 15 to about 30 percent by weight of a styrene-acrylic copolymer emulsion, and from about 18 to about 30 percent by weight of a water-soluble methylated melamine formaldehyde copolymer; (B) from about 25 to about 32 percent by weight of a compound capable of adjusting the pH of the composition; and (C) from about 3 to about 7 percent by weight of a cross-linking acid catalyst, based upon the total weight of the solids, said composition having a dry resin solids range of from about 30 to 40 parts by weight.

4,374,900

COMPOSITE DIAMOND COMPACT FOR A WIRE DRAWING DIE AND A PROCESS FOR THE PRODUCTION OF THE SAME

Akio Hara, and Shuji Yazu, both of Itami, Japan, assignors to Sumitomo Electric Industry, Ltd., Osaka, Japan

Filed Jun. 29, 1979, Ser. No. 53,204
Claims priority, application Japan, Jul. 4, 1978, 53/80476; Jan. 16, 1979, 54/2245
The portion of the term of this patent subsequent to Oct. 6, 1998, has been disclaimed.
Int. Cl.³ B22F 7/06, 7/08; C22C 29/00
U.S. Cl. 428—551 **29 Claims**

1. A diamond compact in cylindrical form for a wire drawing die, in which a part or all of the circumference of a diamond sintered body is surrounded by a cermet consisting of a hard compound of (Mo, W)C type carbide crystals containing molybdenum as a predominant component, bonded by an iron group metal, and wherein the binder phase of the diamond

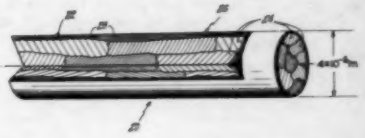
sintered body contains an iron group metal and fine carbide crystals containing molybdenum as a predominant component.

4,374,901

VERY FINE DIAMETER UNIFORM WIRES

Carl M. Ferrar, Hartford, Conn., assignor to United Technologies Corporation, Hartford, Conn.

Filed Dec. 21, 1981, Ser. No. 333,197
Int. Cl.³ C23C 11/02
U.S. Cl. 428—607 **9 Claims**



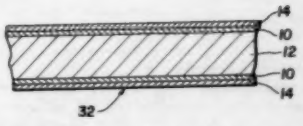
1. A metal wire having a diameter of less than about 6×10^{-6} m comprised of a drawn metal core having a cross sectional area variation of more than ±3% surrounded by a layer of vapor deposited material of essentially the same composition as the core, the wire having an overall cross sectional area variation of less than ±3%, both cross sectional area variations measured over lengths of about 10 mm.

4,374,902

NICKEL-ZINC ALLOY COATED STEEL SHEET

John R. Smith, Richmond, Ohio; William D. Bingle, Rochester, Pa., and Lowell W. Austin, Weirton, W. Va., assignors to National Steel Corporation, Pittsburgh, Pa.

Filed Feb. 11, 1981, Ser. No. 233,569
Int. Cl.³ B32B 15/18
U.S. Cl. 428—621 **6 Claims**



1. A nickel-zinc alloy plated steel sheet for use for forming can bodies and comprising,

a flat rolled steel sheet base metal having a thickness gauge suitable for forming into cans and having a substantially uniform nickel-zinc alloy electroplated coating on each side thereof, said nickel-zinc coating on each side having a thickness within the range of about 0.5 to about 5.0 microinches and the amount of zinc in the coating being within the range of about 2 to about 12 percent by weight, and

a dichromate or chromic acid coating applied to the nickel-zinc alloy coated surfaces.

4,374,903

METAL COATINGS OR METAL SANDWICHES WITH BORON NITRIDE OR TITANIUM DIBORIDE SUBSTRATES

Josef Intrater, Englewood Cliffs, N.J., and Gene Bertoldo, New York, N.Y., assignors to Advanced Technology, Inc., Palisades Park, N.J.

Continuation-in-part of Ser. No. 242,716, Mar. 11, 1981, which is a continuation-in-part of Ser. No. 200,514, Oct. 24, 1980, which is a continuation-in-part of Ser. No. 157,310, Jun. 9, 1980, abandoned. This application May 28, 1981, Ser. No. 268,015
The portion of the term of this patent subsequent to Nov. 9, 1999, has been disclaimed.
Int. Cl.³ C23C 9/10
U.S. Cl. 428—627 10 Claims

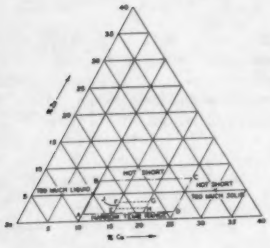
1. A composite of tin, lead, indium, a tin alloy, a lead alloy or an indium alloy as component in a combination with a carbide or carbonyl former, as an adherent coating, film or layer on a base or substrate of boron nitride or titanium diboride, or mixtures thereof.

4,374,904

TIN-BASE BODY SOLDER

Douglas J. Harvey, Sterling Heights, Mich., assignor to General Motors Corporation, Detroit, Mich.

Division of Ser. No. 160,135, Jun. 16, 1980, which is a division of Ser. No. 113,559, Jan. 21, 1980, Pat. No. 4,248,905. This application Apr. 14, 1982, Ser. No. 368,429
Int. Cl.³ C22C 13/00
U.S. Cl. 428—648 4 Claims



1. A metallic body solder incorporated in a steel surface to fill a depression therein and comprising an alloy consisting essentially of, by weight, between about 10 to 25 percent copper, about 1 to 7.5 percent zinc and the balance tin, said solder forming a dense, paintable surface adherent to said steel body.

4,374,905

X-RAY INTENSIFYING SCREEN

Jacob G. Rabatin, Chardon, Ohio, assignor to General Electric Company, Schenectady, N.Y.

Continuation-in-part of Ser. No. 749,996, Dec. 13, 1976, abandoned. This application Oct. 16, 1978, Ser. No. 951,464
Int. Cl.³ C09K 11/475
U.S. Cl. 428—691 1 Claim

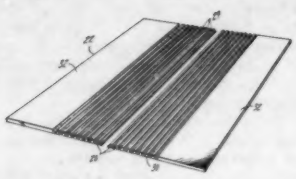
1. An improved x-ray screen including a backing member coated with a physical admixture of a rare earth oxyhalide phosphor selected from lanthanum oxyhalide and gadolinium oxyhalide activated by T_x wherein T_x is chosen from Tm and Tb and an inorganic salt selected from $MgSO_4$ and $ZnSO_4$ added in sufficient quantity from a small but effective amount up to 4 weight percent based on the phosphor weight to retain original emission brightness for a longer time period than for said phosphor without said inorganic salt, said admixture further being adhesively bonded with a polymer binder to said backing member, and said improved x-ray screen resisting loss in film speed and brightness when associated with photographic film.

4,374,906

RIBBED ELECTRODE SUBSTRATES

Richard D. Breault, Coventry, Conn., and Glen J. Goller, West Springfield, Mass., assignors to United Technologies Corporation, Hartford, Conn.

Filed Sep. 29, 1981, Ser. No. 306,835
Int. Cl.³ H01M 4/86, 4/96
U.S. Cl. 429—44 21 Claims



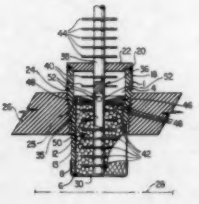
1. An electrochemical cell electrode substrate, said substrate comprising, by weight, 65%–90% carbon fibers and 10%–35% polymeric carbon, said substrate including a flat sheet portion having parallel ribs extending outwardly from and being integral with one side thereof forming parallel channels extending across said substrate, said flat sheet portion having a mean pore size of 25–45 microns and said ribs having a mean pore size 60–75% of said flat sheet portion mean pore size.

4,374,907

GASEOUS HYDROGEN AND OXYGEN COMBINING AND CONDENSING DEVICE

Karl T. Chuang, Deep River; Maurice F. Roett, Calgary, and Francis W. Lemon, Ottawa, all of Canada, assignors to Atomic Energy of Canada Limited, Ottawa, Canada

Filed Sep. 1, 1981, Ser. No. 298,301
Claims priority, application Canada, Sep. 29, 1980, 363142
Int. Cl.³ H01M 10/52
U.S. Cl. 429—57 7 Claims



1. A gaseous hydrogen and oxygen combining and condensing device, comprising:

(a) an inverted, cup-shaped casing,

(b) a partition dividing the casing interior into an upper, condensing chamber and a lower, gaseous hydrogen and oxygen combining, catalyst chamber, the partition having drainage passages for distributing draining condensed water, from the condensing chamber, across the interior of the catalyst chamber,

(c) a gaseous hydrogen and oxygen combining catalyst assembly partially filling the interior of the catalyst chamber, the catalyst assembly having passages therethrough for the upward flow through the catalyst assembly of gaseous hydrogen and oxygen and the downward flow through the catalyst assembly of condensed water draining from the condensing chamber, the catalyst assembly

comprising at least one catalyst support, and a coating on the support, the coating comprising a porous matrix of polytetrafluoroethylene and exposed, partially platinized high surface area carbon particles dispersed throughout the porous matrix, the partially platinized high surface area carbon particles being present in the porous matrix in a weight ratio in the range extending from of the order of 1.5:1 to of the order of 6:1 polytetrafluoroethylene to partially platinized, high surface area carbon particles, and

(d) a heat conducting assembly for conducting heat from the upper, condensing chamber, the heat conducting assembly comprising a heat conducting rod sealed to and extending through an upper wall of the casing, heat exchange discs above the casing and secured to the rod above the upper wall of the casing and heat exchange discs in the condensing chamber and secured to the rod, all of the heat exchange discs being secured to the rod for the transmission of heat to and from the rod.

4,374,908

TUBULAR ELECTRODE

Alfons S. M. Lindholm, Herserudsvagen 2C, S-181 34 Lidingo, and Rolf C. G. Magnusson, Matrosvagen 5, S-133 00 Saltsjobaden, both of Sweden

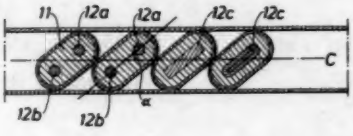
PCT No. PCT/SE80/00029, § 371 Date Sep. 30, 1980, § 102(e) Date Sep. 26, 1980, PCT Pub. No. WO80/01626, PCT Pub. Date Aug. 7, 1980

PCT Filed Jan. 30, 1980, Ser. No. 206,607

Claims priority, application Sweden, Jan. 30, 1979, 7900812

Int. Cl.³ H01M *2/18*

U.S. Cl. 429—140 **10 Claims**



1. A battery electrode structure comprising:

a generally planar first electrode;

a plurality of elongate, permeable tube casings each having a generally oval cross-sectional shape, arranged parallel to one another at an angle to the first electrode of between about 25° and 50°, and touching one another along longitudinal contact lines, said angle measured from the major axis of the cross-section of said tube casing;

a second electrode arranged within each said tube casing; and

an active material substantially filling a volume within said tube casings between said second electrodes and an internal surface of said respective tube casings.

4,374,909

SEALS FOR ELECTROCHEMICAL CELLS

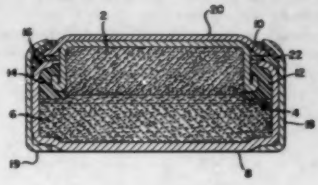
Gary R. Tucholski, Parma Heights, Ohio, assignor to Union Carbide Corporation, Danbury, Conn.

Filed Jun. 26, 1981, Ser. No. 277,730

Int. Cl.³ H01M *2/08*

U.S. Cl. 429—174 **8 Claims**

1. A sealed electrochemical cell comprising a cathode material, an anodic material and an electrolyte housed in a cylindrical container having an upstanding wall and being sealed at its open end by a closure means which comprises a first cover and a first nonconductive gasket, said nonconductive gasket compressed between the interface of the first cover and the container providing a primary seal, the improvement wherein a second cover is disposed over the first cover, an outer cylindrical member open at both ends is disposed around the upstanding cylindrical wall of the container, and a second gasket is disposed and compressed between the interface of the upper portion of the cylindrical member and the second cover and



said second gasket is further disposed and compressed between the second cover and the container thereby forming a second seal for the cell.

4,374,910

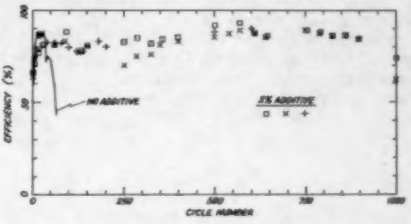
ELECTROLYTE FOR SECONDARY ELECTROCHEMICAL CELL

Paul G. Glugla, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

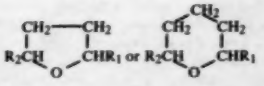
Filed Sep. 22, 1981, Ser. No. 304,494

Int. Cl.³ H01M *6/14*

U.S. Cl. 429—197 **10 Claims**



1. In a secondary electrochemical cell wherein the active material of one of the electrodes is lithium metal, the improvement comprising an electrolyte consisting essentially of 2-methoxyethanol and a solution composed of one or more solvents selected from the group which has the formula:



where R_1 and R_2 are both methyl groups or one of them is a methyl group and the other is hydrogen and an ionically dissociable lithium salt, said 2-methoxyethanol ranging in amount from about 0.5% by weight of said solution to an amount wherein the resulting electrolyte does not exhibit a significant rate of gas evolution.

4,374,911

PHOTO METHOD OF MAKING TRI-LEVEL DENSITY PHOTOMASK

Phillip A. Hartley, Vestal, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 901,044, Apr. 28, 1978, abandoned. This application Jan. 14, 1980, Ser. No. 112,246

Int. Cl.³ G03C *5/04*; G03F *1/00*

U.S. Cl. 430—5 **2 Claims**

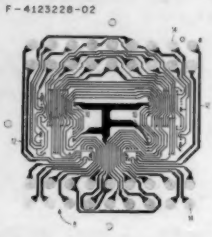
1. A method of fabricating a patterned photomask having at

least three zones of differing light transmissibility by the steps of:

(a) forming a first mask from a predetermined pattern, said first mask having only two zones of differing light transmissibility when formed;

(b) forming a temporary mask from a selected portion of the zone of said pattern having the greater light transmissibility;

(c) forming a second mask by printing the photographic equivalent of said temporary mask on diazo film which



blocks the transmission of ultraviolet light, said second mask being the photographic opposite of said first mask;

(d) aligning said first and second masks so that said selected portion of said second mask is superimposed over its own location in said first mask;

(e) forming a composite latent image of said aligned first and second masks by projecting light therethrough onto a suitable photographic emulsion; and

(f) developing and fixing said composite latent image to form said patterned photomask.

4,374,912

PHOTOMASK AND PHOTOMASK BLANK

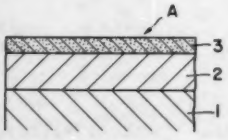
Satoru Kaneki, Sayama; Yuzi Kikuchi, Sakado, and Yoji Sasaki, Kokubunji, all of Japan, assignors to Dai Nippon Insatsu Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 10, 1981, Ser. No. 319,962

Claims priority, application Japan, Mar. 31, 1981, 56-47922; Mar. 31, 1981, 56-47923

Int. Cl.³ B32B 9/00

U.S. Cl. 430—5 **10 Claims**



7. A photomask comprising a transparent substrate and a patternized multi-layer masking film provided on the substrate, said multi-layer masking film comprising a layer of tantalum and a composite layer of tantalum oxide and tantalum nitride laminated on said tantalum layer.

4,374,913

GRANULATED SCREEN AND A METHOD OF MANUFACTURING SAME

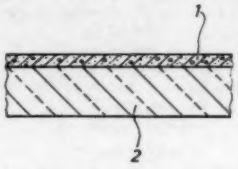
Hans E. Müller, Dielsdorf, Switzerland, assignor to Licht Druck Ag, Switzerland

Filed Jul. 2, 1981, Ser. No. 280,160

Claims priority, application Europen Pat. Off., Feb. 5, 1981, 81 100 822

Int. Cl.³ G03F 5/00

U.S. Cl. 430—6 **3 Claims**



1. A method of manufacturing a granulated screen comprising depositing a thin asphalt solution on a plate of glass; drying said asphalt solution under the influence of light to form a fine grain having a grain number of at least about 300 grains/cm; and optically printing said grain onto a photosensitive material.

4,374,914

PROCESS FOR THE PRODUCTION OF NEGATIVE COLOR IMAGES BY THE SILVER DYE BLEACH PROCESS, AND THE SILVER DYE BLEACH MATERIAL USED IN THIS PROCESS

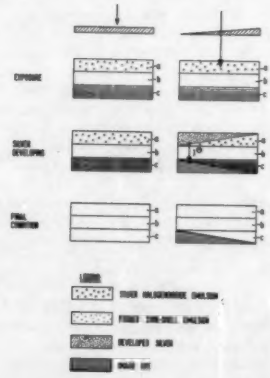
Herbert Mollet, Tentlingen, and Dieter Wyrsch, Marly, both of Switzerland, assignors to Ciba-Geigy Ltd., Basel, Switzerland

Filed Jul. 13, 1981, Ser. No. 282,777

Claims priority, application Switzerland, Jul. 22, 1980, 5589/80

Int. Cl.³ E03C 7/00

U.S. Cl. 430—15 **16 Claims**



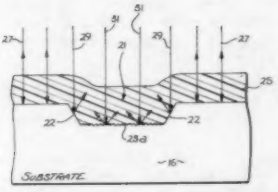
1. A process for the production of negative colour images by the silver dye bleach process, by exposure of a photographic silver dye bleach material, silver developing, dye bleaching, silver bleaching and fixing, the silver bleaching being optionally carried out simultaneously with the dye bleaching and/or the fixing, in a single treatment bath, in which process the photographic silver dye bleach material consists of a support with at least one layer assembly of three layers in each case, each layer assembly containing, as viewed from the same side as the incident light:

(a) a first layer which contains a highly sensitive and optionally spectrally sensitised silver halogenoiodide emulsion,
(b) an intermediate layer containing neither silver halide nor image dye, and
(c) a third layer which contains a bleachable image dye and a core-shell emulsion which is free of iodide or has a low iodide content, the particles of which emulsion consist of a surface-fogged silver halide core optionally treated with a developing retarder, and of a silver halide shell enclosing the said core, it being possible for this emulsion to be developed spontaneously up to the maximum density by the action of a developer, the photographic material, in the case where it consists of more than one layer assembly, optionally contains intermediate layers (d) between the layer assemblies and the developing is carried out in a developer solution which is free of silver-complexing agent.

4,374,915
HIGH CONTRAST ALIGNMENT MARKER FOR INTEGRATED CIRCUIT FABRICATION

C. Norman Ahlquist, Menlo Park; Yaw Wen Hu, San Jose; Peter F. Schoen, Redwood City Marina, and Paul A. Poenisch, Santa Clara, all of Calif., assignors to Intel Corporation, Santa Clara, Calif.

Filed Jul. 30, 1981, Ser. No. 288,519
Int. Cl.³ G03F *9/00*; G03C *11/00*
U.S. Cl. 430—22 **5 Claims**



1. In the fabrication of integrated circuits on a substrate wherein radiation is passed through a masking member to expose certain regions of a photosensitive layer, a process for forming an improved marker for permitting better alignment between said masking member and said substrate, comprising the steps of:
forming a photoresist layer on said substrate;
forming an opening in said layer at the proposed site of said marker;
etching a depression in said substrate in said substrate at said opening, said depression including sloped sides and a generally planer bottom region;
roughening said bottom region such that said bottom region directly reflects less radiation than said substrate surface;
whereby a high contrast marker for use in aligning said masking member with said substrate is formed.

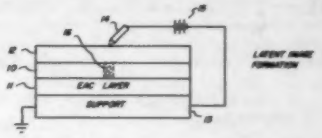
4,374,916
ELECTRICALLY CONDUCTIVE INTERLAYER FOR ELECTRICALLY ACTIVATABLE RECORDING ELEMENT AND PROCESS

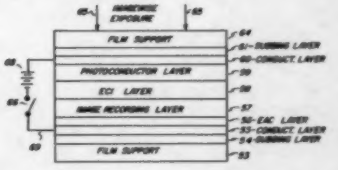
Mark Leiental, and Gary M. Goncher, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Nov. 27, 1981, Ser. No. 325,270
Int. Cl.³ G03G *17/00*
U.S. Cl. 430—31 **24 Claims**

1. In an electrically activatable recording element comprising an electrically conductive support having thereon, in sequence:
(a) an electrically activatable recording layer,
(b) a photoconductive layer, and
(c) an electrically conductive layer, the improvement wherein the electrically activatable recording layer (a) and photoconductive layer (b) are separated by an electrically conductive interlayer comprising electrically conductive particles uniformly dispersed in an electrically insulating binder.

23. A dry, electrically activatable recording process for producing a dye enhanced silver image in an electrically activatable recording element comprising, on an electrically conductive support, in sequence:
(a) a polymeric electrically active conductive layer,
(b) an electrically activatable recording layer comprising:
(A) a dye-forming coupler, and
(B) an oxidation-reduction combination comprising:
(i) an organic silver salt oxidizing agent with
(ii) a reducing agent which, in its oxidized form, forms a dye with said dye-forming coupler, having thereon:





(c) a separable, electrically conductive, film interlayer comprising electrically conductive particles dispersed in an electrically insulating binder,
said process comprising the steps of:
(I) positioning a photoconductive element comprising an electrically conductive support on said film interlayer;
(II) imagewise exposing said photoconductive element to actinic radiation while simultaneously applying an electrical potential of sufficient magnitude and for a sufficient time across said photoconductive element and said recording element to produce a latent image in the areas of said recording layer corresponding to the exposed areas of said photoconductive element; and
(III) substantially uniformly heating the recording element at a temperature and for a time sufficient to produce a dye enhanced silver image in said recording element.

4,374,917
INFRARED PHOTOCONDUCTOR FOR ELECTROPHOTOGRAPHY OF A COPPER ACTIVATED MERCURY CONTAINING CADMIUM SELENIDE TELLURIDE

Sixdeniel Faria, Towanda, Pa., assignor to GTE Products Corporation, Stamford, Conn.

Filed Dec. 11, 1981, Ser. No. 329,894
Int. Cl.³ G03C *1/00*; G03G *5/087*, *5/04*
U.S. Cl. 430—94 **4 Claims**

1. A copper-activated mercury-containing cadmium selenide telluride infrared-responsive photoconductor.

4,374,918
THERMALLY STABLE LIQUID NEGATIVE DEVELOPER

Norman T. Veillette, Hollis, N.H.; Charles H. C. Pian, Lexington, Mass., and Tahsin A. Ashour, Amherst, N.H., assignors to Nashua Corporation, Nashua, N.H.

Filed Sep. 16, 1981, Ser. No. 302,504
Int. Cl.³ G03G *9/12*
U.S. Cl. 430—115 **22 Claims**

1. A liquid negative developer composition of improved storage and thermal stability for developing an electrostatic latent image on the surface of an image bearing member, said composition comprising:

an organic liquid carrier having a resistivity greater than 10^9 ohm-cm and a dielectric constant less than 3;

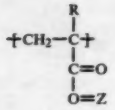
a pigment;

a gel on the borderline of solubility in said carrier;

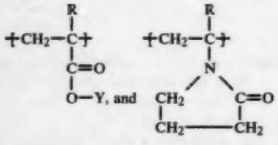
a latex which is insoluble in said carrier, and

a two-component charge control agent for imparting a negative charge to said composition consisting essentially of

a first polymer, soluble in said carrier, containing multiple moieties of basic character and comprising a major amount of monomer units (A) selected from the group consisting of:



and a minor amount of monomer units (B) selected from the group consisting of:



wherein R. is CH_3 or H, Z is a hydrocarbon chain having 8–20 carbon atoms, and Y is a hydroxylated alkyl group; and

a second polymer, insoluble in said carrier, containing multiple halogen moities of acid character and a minor amount of carrier-soluble moities.

4,374,919
DIFFUSION TRANSFER COLOR PHOTOGRAPHIC ELEMENT WITH U.V. ABSORBING AGENT ADJACENT PROTECTIVE LAYER

Masaharu Toriuchi, Minami-ashigara, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Oct. 2, 1981, Ser. No. 307,999
Claims priority, application Japan, Oct. 2, 1980, 55-138101
Int. Cl.³ G03C *1/40, 5/54, 1/84*
U.S. Cl. 430—220 **8 Claims**

1. A diffusion transfer color photographic element comprising (1) a light-sensitive sheet comprising a support having superposed thereon at least one silver halide emulsion layer having associated therewith a color image-providing compound, (2) a cover sheet comprising a support having thereon in sequence at least one neutralizing layer and at least one neutralization timing layer where said light-sensitive sheets and said cover sheet are arranged so that they may contact with each other on the sides opposite to their respective support sides, (3) an aqueous alkaline processing composition to be spread in a uniform layer between said light-sensitive sheet and said cover sheet, wherein said light-sensitive sheet (1) further comprising a protective layer which consists essentially of a hydrophilic colloid at a position farthest from the support thereof and a layer comprising an organic ultraviolet absorbant at adjacent to said protective layer and closer to the support thereof than said protective layer, and a dye-image receiving layer.

4. The diffusion transfer color photographic element as in claim 1, wherein said ultraviolet absorbant has a molecular absorbancy index of 5,000 or more in the maximum absorption wavelength range of 300 nm to 390 nm and is oil soluble insoluble in water in the pH range of 3 to 8.

4,374,920
POSITIVE DEVELOPER CONTAINING NON-IONIC SURFACTANTS

Stanley F. Wanat, Scotch Plains, and Shane Hsieh, Bridgewater, both of N.J., assignors to American Hoechst Corporation, Somerville, N.J.

Filed Jul. 27, 1981, Ser. No. 287,465
Int. Cl.³ G03C *5/24*
U.S. Cl. 430—331 **8 Claims**

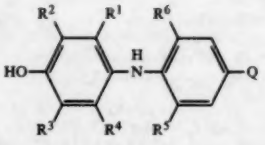
1. A developer for positive working photographic elements which comprises an aqueous solution of hydroxide ions having a pH above about 7.0 provided from an alkali having a concentration in the developer which ranges from about 0.2 to about 10 percent by weight; and a compatible non-ionic surfactant selected from the group consisting of one or more of tetramethyl decynediol and ethoxylated tetramethyl decynediol.

4,374,921
IMAGE ENHANCEMENT OF PHOTOTHERMOGRAPHIC ELEMENTS

Robert A. Frenchik, Sommerset, Wis., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Jun. 8, 1981, Ser. No. 271,408
Int. Cl.³ G03C *1/52, 1/02*
U.S. Cl. 430—338 **9 Claims**

1. A photothermographic layer comprising a binder, a silver source material, photographic silver halide in catalytic proximity to said silver source material, and a reducing agent for silver ion, characterized by the fact that the reducing agent comprises at least one indoaniline leuco dye having the formula:



wherein

R^1=H, alkyl, alkoxy

R^2=H, Cl

R^3=H, Cl

R^4=H, alkyl, alkoxy

R^5=H, alkyl, alkoxy

R^6=H, alkyl, alkoxy

Q=dialkylamine, acetamide, and

wherein at least two of R^1, R^2, R^3, and R^4 must be H; which dye is in the presence of at least one aromatic carboxylic acid and at least one p-alkylphenyl sulfonic acid in reactive associate with said layer.

4,374,922

METHOD FOR THE FORMATION OF A DYE IMAGE

Keiji Ohbayashi, Sagamihara; Akihiko Miyamoto, Odawara; Masaru Iwagaki, Odawara, and Makoto Kajiwara, Odawara, all of Japan, assignors to Konishiroku Photo Industry Co., Ltd., Tokyo, Japan

Filed Jul. 10, 1981, Ser. No. 282,258
Claims priority, application Japan, Jul. 11, 1980, 55-93909
Int. Cl.³ G03C 7/00
U.S. Cl. 430—383 6 Claims

1. A method for the formation of a dye image comprising the steps of:

color-developing in an alkaline bath a silver halide color photographic light-sensitive material comprising a support, component layers, said layers being provided on said support and having a swelling degree of less than 250 in said alkaline bath, and components comprising an aromatic primary amine color developing agent or a precursor thereof, a nondiffusing yellow coupler, a nondiffusing magenta coupler and a nondiffusing phenolic cyan coupler having a substituted or unsubstituted acylamino group at the second and fifth positions thereof; and

processing said material in a bleach-fixing bath.

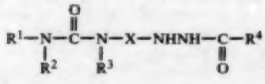
4,374,923

DIRECT POSITIVE SILVER HALIDE PHOTOGRAPHIC LIGHT-SENSITIVE MATERIAL

Shigeo Hirano; Tadao Sugimoto, and Nobuyuki Tsujino, all of Minami-ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Nov. 17, 1981, Ser. No. 322,137
Claims priority, application Japan, Nov. 19, 1980, 55-162967
Int. Cl.³ G03C 1/36
U.S. Cl. 430—410 26 Claims

1. A direct positive silver halide photographic light-sensitive material comprising a support having coated thereon at least one light-sensitive internal latent image silver halide photographic emulsion layer, said silver halide photographic emulsion not being previously fogged, wherein at least one layer of the light-sensitive silver halide photographic emulsion layers and other hydrophilic colloid layers contains a fogging amount of a compound represented by formula (I)



(I)

wherein R^1 and R^2 can each represent a hydrogen atom, an aliphatic group, an aromatic group, or a heterocyclic group; R^3 represents a hydrogen atom or an aliphatic group; R^4 represents a hydrogen atom, an aliphatic group, or an aromatic group; and X represents a divalent aryl group.

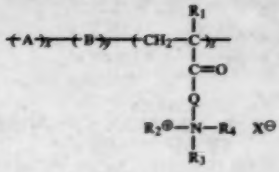
4,374,924

ANTISTATIC SILVER HALIDE PHOTOGRAPHIC LIGHT-SENSITIVE MATERIAL

Shigeki Yokoyama; Shinzo Kishimoto; Itsuki Toriya, and Taku Nakamura, all of Minami-ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Continuation of Ser. No. 87,837, Oct. 24, 1979, abandoned. This application Feb. 24, 1982, Ser. No. 351,812
Claims priority, application Japan, Oct. 24, 1978, 53-130841
Int. Cl.³ G03C 1/02
U.S. Cl. 430—528 21 Claims

1. A silver halide photographic light-sensitive material having at least one antistatic layer of low surface electric resistance, good adhesion and which does not suffer from scum during development as an outermost backing layer, said antistatic layer containing a dispersion of a polymer represented by the following formula (I):



(I)

wherein A represents a monomer unit formed from a copolymerizable monomer having at least two ethylenically unsaturated groups, B represents a monomer unit formed from a copolymerizable and monethylenically unsaturated monomer, R_1 represents a hydrogen atom or a lower alkyl group having 1 to 6 carbon atoms, Q represents a divalent group containing 1 to 12 carbon atoms, wherein Q is selected from the class consisting of —O—R_6 and —NH—R_6—, wherein R_6 is an alkylene group containing 1 to 6 carbon atoms, R_2, R_3 and R_4 may be the same or different and each represents an alkyl group containing 1 to 20 carbon atoms, or an aralkyl group containing 7 to 20 carbon atoms, or R_2, R_3 and R_4 may combine to form a ring together with the nitrogen atom, $X^{\ominus}$ represents an anion, x is about 0.25 to 10 mol%, y is about 0 to 90 mol%, and z is about 10 to 99 mol%.

4,374,925

MACROMOLECULAR ENVIRONMENT CONTROL IN SPECIFIC RECEPTOR ASSAYS

David J. Litman, Palo Alto; Zvi Harel, Stanford, and Edwin F. Ullman, Atherton, all of Calif., assignors to Syva Company, Palo Alto, Calif.

Division of Ser. No. 964,099, Nov. 24, 1978, Pat. No. 4,275,149. This application Feb. 9, 1981, Ser. No. 232,777
The portion of the term of this patent subsequent to Jun. 23, 1998, has been disclaimed.
Int. Cl.³ G01N 33/54
U.S. Cl. 435—7 4 Claims

1. An assay method for determining the presence in a sample of an analyte, wherein the ligand with its homologous antiligand define a specific binding pair,

wherein said method employs (1) a medium comprised of an aqueous buffered continuous phase at a pH in the range of about 6.5 to 9.5 and a discontinuous solid phase of dispersable porous discrete particles to which is conjugated one of the members of said specific binding pair and the enzyme β-galactosidase to provide a particle conjugate and (2) a signal producing system capable of producing a measurable signal and having a second enzyme alkaline phosphatase conjugated to a member of said specific binding pair to provide a signal label conjugate, wherein said first and second enzymes with 4-methylumbelliferyl-β-D-galactopyranoside-6-phosphate define said signal producing system, said particle conjugate defining an environment which affects the production of a fluorescent signal differently from said aqueous medium, so that said measurable signal varies in relation to the partitioning of said signal label conjugate between said particles and said aqueous medium, said partitioning being related to the amount of analyte in said medium,

said method comprising:

combining in said aqueous medium,

(a) said sample;

(b) said particle conjugate substantially uniformly dispersed in said aqueous medium;

(c) said signal label conjugate;

(d) the homologous member of said specific binding pair, when said analyte, particle conjugate and signal label conjugate have the same member; and

(e) 4-methylumbelliferyl-β-D-galactopyranoside-6-phosphate,

whereby said signal label conjugate will be partitioned be-

tween said aqueous medium and said particle conjugate to a degree dependent upon the amount of ligand in said sample; and

determining the level of said fluorescent signal as compared to an assay medium having a known amount of analyte.

4,374,926
METHOD FOR THE PRODUCTION OF IMPROVED CHYMOPAPAIN

Ivan J. Stern, Chicago, Ill., assignor to Smith Laboratories, Inc., Northbrook, Ill.

Filed May 13, 1981, Ser. No. 263,196
Int. Cl.³ C12Q *1/38*; C12N *9/50*
U.S. Cl. 435—23 **20 Claims**

1. A process for the purification of crude chymopapain to produce a purified chymopapain of reduced toxicity comprising:

(a) contacting an aqueous buffered solution of crude chymopapain with a weakly acidic cationic exchanger comprising a column of carboxymethyl substituted cross-linked agarose gel, said exchanger having been previously equilibrated with aqueous buffer solution having a pH of between about 6.5 and 7.5;

(b) eluting the chymopapain retained on the exchanger with a similar aqueous buffer solution having a pH in the same pH as the buffer used for equilibrating the carboxymethyl substituted agarose gel, but having a linearly increasing ionic concentration of a compatible, non-reactive, water-soluble, pharmaceutically acceptable, neutral inorganic salt with respect to eluent volume;

(c) collecting and discarding a first series of fractions of eluent from said exchanger containing an initial protein component from crude chymopapain until the molarity of the eluent with respect to said soluble salt increases to and reaches the range of 0.25 to 0.4;

(d) continuously collecting and retaining a further series of fractions of chymopapain eluted from the exchanger comprising two proteolytically active chymopapain components at increasing soluble salt concentrations greater than about 0.25 to 0.4 molar, until substantially all of the said absorbed cymopapain is recovered;

(e) treating said retained fractions containing proteolytically active components of the chymopapain to remove the dissolved ionic inorganic salts, and buffer components; and

(f) lyophilizing the essentially salt-free chymopapain solution to produce a dry, purified proteolytically active chymopapain essentially free of proteolytically inactive or toxic components.

20. A method of identifying a purified chymopapain essentially free of proteolytically inactive, antigenic and colored material, which comprises the essential absence of a precipitate formation of an acidified solution of said purified chymopapain when contacted with a U.S.P. test solution barium chloride.

4,374,927
EXTRACHROMOSOMAL REGULATION OF EXPRESSION

John J. Sninsky, Mountian View, and Stanley N. Cohen, Portola Valley, both of Calif., assignors to The Board of Trustees of the Leland Stanford Jr. University, Stanford, Calif.

Filed Feb. 24, 1981, Ser. No. 237,555
Int. Cl.³ C12P *21/00, 21/02*; C12N *15/00, 1/20, 1/00*; C12R *1/19*
U.S. Cl. 435—68 **32 Claims**

1. A method for producing a poly(amino acid) product on demand, said method comprising:

(a) growing to a high density transformant microorganism host cells having at least one extrachromosomal element capable of replication in said host cells which includes:

(1) an activatable runaway-replication vector,

(2) components of a first regulatory system comprising a first regulatory element subject to control by an external modulator, wherein said first regulatory element regulates a gene producing a control factor,

(3) components of a second regulatory system comprising a second regulatory element, subject to control by said control factor, wherein said second regulatory element regulates a gene producing a poly(amino acid) product,

(4) a gene expressing a poly(amino acid) product replicated in conjunction with said runaway-replication-vector,

(5) a gene expressing a control factor;

(b) subjecting said cells to an external modulator which modulates expression of said control factor producing gene in a direction enhancing expression of said product producing gene, while activating said runaway-replication vector, where enhanced expression and amplification of said product producing gene occurs with enhanced production of said poly(amino acid).

16. A microorganism cell having at least one extrachromosomal element capable of replication in said cell which includes:

(1) an activatable runaway-replication vector;

(2) components of a first regulatory system comprising a first regulatory element subject to control by an external modulator, wherein said first regulatory element regulates a gene producing a control factor;

(3) components of a second regulatory system comprising a second regulatory element subject to control by said control factor, wherein said second regulatory element regulates a gene producing a poly(amino acid) product;

(4) a gene expressing said poly(amino acid) product replicated in conjunction with said runaway-replication vector,

(5) a gene expressing a control factor.

4,374,928
NOVEL REDUCTASE

Nathan Brot, West Orange, and Herbert Weissbach, Cedar Grove, both of N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

Filed Jun. 1, 1981, Ser. No. 269,150
Int. Cl.³ C12P *21/00*; C12N *9/02*; C12Q *1/26*; A61K *37/50*
U.S. Cl. 435—68 **7 Claims**

1. Peptide MetSO reductase being an enzyme endogenous to biological cells and being essentially free of other endogenous peptides, said reductase being characterized as follows:

(i) having the ability to reduce methionine sulfoxide residues in peptides to methionine;

(ii) unable to reduce free methionine sulfoxide to methionine;

(iii) having a molecular weight of about 18,000 to 20,000 (Ultragel); and

(iv) being free of transacetylase activity.

4,374,929
PRODUCTION OF XANTHAN GUM FROM A CHEMICALLY DEFINED MEDIUM INTRODUCTION

William P. Weisrock, Broken Arrow, Okla., and Harriet S. Klein, Glen Ellyn, Ill., assignors to Standard Oil Company (Indiana), Chicago, Ill.

Continuation-in-part of Ser. No. 167,893, Jul. 14, 1980, abandoned. This application Nov. 2, 1981, Ser. No. 317,372
Int. Cl.³ C12P *19/06*; C12R *1/64*
U.S. Cl. 435—104 **15 Claims**

1. A continuous process for the production of a heteropolysaccharide which comprises continuously culturing a microorganism of the genus Xanthomonas in a liquid chemically defined medium free of yeast or other undefined nitrogen source, but containing both a chelating agent and organic supplements in the form of water soluble growth factors which permits said organism to grow and produce said heteropolysaccharide in a stable non-degenerative state and wherein the growth limiting nutrient in said medium is any of the nutrients normally used in said process, culturing said microorganism in said medium

without discontinuing the fermentation process and withdrawing heteropolysaccharide from said medium at a rate such that an essentially steady state condition is maintained.

4,374,930
METHOD FOR THE PURIFICATION OF CHOLESTEROL OXIDASE

Roy E. Snoke, Webster, and Charles T. Goodhue, Rochester, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Oct. 19, 1981, Ser. No. 312,474
Int. Cl.³ C07G 7/028
U.S. Cl. 435—190 **12 Claims**

1. A method for purifying cholesterol oxidase comprising the steps of:

(a) contacting a solution of the cholesterol oxidase to be purified with a composition comprising an unbound water-insoluble steroid which is a nonsubstrate for cholesterol oxidase so as to adsorb said cholesterol oxidase on said steroid;

(b) separating said solution from said steroid; and

(c) contacting said steroid with an eluting solution containing a surfactant at a concentration between 0.001 percent and 10 percent by weight so as to recover said cholesterol oxidase.

4,374,931
PHOTOCHROMIC GLASS SUITABLE FOR OPHTHALMIC APPLICATIONS

Philippe Courbin, Veneux les Sablons, France; David J. Kerko, Corning, N.Y.; Jean P. Mazeau, Avon, France, and David L. Morse, Corning, N.Y., assignors to Corning Glass Works, Corning, N.Y.

Filed Jan. 8, 1982, Ser. No. 338,042
Int. Cl.³ C03C 3/26, 3/08, 3/10
U.S. Cl. 501—13 **2 Claims**

1. A photochromic glass composition consisting essentially, expressed in terms of weight percent on the oxide basis is calculated from the batch, of

SiO_2	52–59
B_2O_3	18–23
Al_2O_3	6–8
Li_2O	1–2.5
Na_2O	1–3
K_2O	8–13
ZrO_2	2–6
TiO_2	0–3

and containing, as analyzed in weight percent, of

Ag	0.17–0.22
Br	0.06–0.12
Cl	0.29–0.35
CuO	0.012–0.019
PbO	0.1–0.15

demonstrating, in 0.4 mm cross section, a clear luminous transmittance in excess of 90%, a darkened luminous transmittance below about 45% at a temperature of 25° C., a darkened luminous transmittance below about 57% at a temperature of 40° C., and a half fading time at both temperatures of about five minutes.

4,374,932
5-ASA DRUG DELIVERY SYSTEM

Barnett S. Pitzele, Skokie, and Peter H. Jones, Lake Bluff, both of Ill., assignors to G. D. Searle & Co., Skokie, Ill.

Filed Jun. 8, 1981, Ser. No. 271,748
Int. Cl.³ B01J 41/14; A61K 31/74
U.S. Cl. 521—32 **2 Claims**

1. A polymeric anionic exchange complex comprising a pharmacologically acceptable, non-absorbable, non-degradable anionic exchange resin and the dianionic form of 5,5'-azobis salicylic acid.

4,374,933
METHOD OF PREPARATION OF POROUS MEMBRANES AND ADSORBENTS

Horst Scholze, Würzburg; Helmut Schmidt, Höchberg, and Harald Böttner, Gerbrunn, all of Fed. Rep. of Germany, assignors to Fraunhofer-Gesellschaft, Munich, Fed. Rep. of Germany

Continuation of Ser. No. 160,480, Jun. 18, 1980, abandoned.
This application Mar. 23, 1982, Ser. No. 360,996
Claims priority, application Fed. Rep. of Germany, Jun. 27, 1979, 2925969
Int. Cl.³ C08J 9/24; C08G 77/56
U.S. Cl. 521—64 **22 Claims**

1. A process for the preparation of a porous heteropolycondensate adsorbent, comprising:

(i) forming a reaction mixture comprising:

(a) at least one hydrolysable silicic acid derivative of the general formula I:

$$SiR_4 \quad (I)$$

wherein each R is selected from the group consisting of hydrogen, halogen, alkoxy and $—NR'_2$, wherein each R' is a hydrogen atom or an alkyl group, with the proviso that not all the R radicals are hydrogen atoms, and

(b) at least one substituted silane of the general formula II:

$$SiR_nR''_{(4-n)} \quad (II)$$

wherein R is as defined above, each R'' is selected from the group consisting of alkyl, alkenyl, aryl and aralkyl and n is an integer from 1 to 3, and

(c) optionally at least one functional silane of the general formula III:

$$SiR_n(R'''Y)_{(4-n)} \quad (III)$$

wherein R and n have the meanings defined above, each R''' is selected from the group consisting of alkylene, phenylene, alkylphenylene and alkylenephenylene and Y is selected from the group consisting of halogen, amino, anilino, aldehyde, keto, carboxy, hydroxy, mercapto, cyano, hydroxyphenyl, diazo, carboxylic alkyl ester, sulphonic acid ($—SO_3H$) and phosphoric acid ($—PO_3H_2$), and/or

(d) optionally at least one oxide component selected from the group consisting of non-volatile oxides soluble in the reaction medium and compounds capable of forming non-volatile oxides soluble in the reaction medium, the oxide component being an oxide of an element selected from Groups Ia to Va, Group IVb and Group Vb of the Periodic System, the improvement which comprises:

(ii) subjecting the reaction mixture of hydrolysis and condensation in the presence of 10% to 75% by weight, based on the weight of the reaction mixture, of a condensation catalyst, with the proviso that when water is the condensation catalyst at least the amount of water stoichiometrically required for hydrolysis is used, optionally in the presence of a solvent,

wherein the amounts of the components (a) to (d) are selected so that the resultant silicic acid heteropolycondensate, calculated as oxide units, contains, by weight, 35% to 90% of component (a), 10% to 50% of component (b), 0% to 15% of component (c) and 0% to 40% of component (d) and

(iii) removing said water or solvent and drying the obtained polycondensate thereby obtaining a porous adsorbent having two definite different pore sizes including a smaller

pore size in the nanometer range and a larger pore size in the micrometer range.

4,374,934

SEMI-FLEXIBLE FOAM POLYMER USED IN PACKAGING

Robert J. Raynor, North Branford, Conn., assignor to Olin Corporation, New Haven, Conn.

Filed Mar. 30, 1981, Ser. No. 248,166
Int. Cl.³ C08G *18/14, 18/48*
U.S. Cl. 521—112 **9 Claims**

1. A semi-flexible foam polymer having a density of from about 0.35 to about 1 pound per cubic foot, said polymer being prepared from a reaction mixture having an over-all index of about 20 to about 70, wherein said reaction mixture comprises:

(a) a polymeric polyisocyanate having an average functionality of about 2 to about 3.5;

(b) a polyether polyol having 2–4 hydroxy groups and a molecular weight from about 500 to about 3,000, said polyether polyol being employed in a proportion of about 10 to about 70 parts per every 100 parts by weight of total polyisocyanate in said reaction mixture;

(c) a foaming agent which consists essentially of water and is substantially free of fluorinated hydrocarbon compounds, said foaming agent being employed in a proportion of about 7 to about 30 parts per every 100 parts of total polyisocyanate in said reaction mixture;

(d) an amine catalyst; and

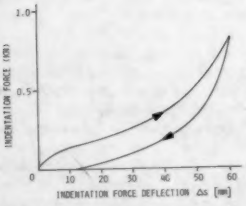
(e) a silicon-based surfactant.

4,374,935

PROCESS FOR THE PREPARATION OF FLEXIBLE POLYURETHANE FOAMS EMPLOYING POLYESTER-POLYETHER POLYOL MIXTURES

Walter Decker, Ludwigshafen; Ernst Schoen, Neustadt; Herbert Grabhoefer, Ludwigshafen, and Peter Weyland, Frankenthal, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Filed Jan. 4, 1982, Ser. No. 336,878
Claims priority, application Fed. Rep. of Germany, Jan. 10, 1981, 3100524
Int. Cl.³ C08G *18/14, 18/42, 18/32*
U.S. Cl. 521—173 **7 Claims**



1. A process for the preparation of flexible polyurethane foams by reacting organic polyisocyanates, polyhydroxyl compounds and optionally chain extenders in the presence of catalysts and blowing agents as well as auxiliaries wherein the polyhydroxyl compounds consist of mixtures of

(a) liquid polyester polyols with hydroxyl numbers of 40 to 80 and molecular weights of 1500 through 5000 which are produced by polycondensation of organic dicarboxylic acids with a polyol mixture which contains based on the overall polyol weight:

10 to 50 weight of 1,4-butanediol,

30 to 60 percent by weight of 1,5-pentanediol,

8 to 35 percent by weight of 1,6-hexanediol, and

2 to 15 percent by weight of at least one triol, and

(b) di- to tetra-functional polyether polyols having molecular weights of 1500 to 6000.

4,374,936

LIQUID OF ACRYLIC COPOLYMER AND TETRAHYDROFURANTETRACARBOXYLIC ACID FOR SETTING DENTAL CEMENTS

Kentaro Tomioka, Chofu; Kazuo Hirota, Tokyo; Hiroaki Muramatsu, Gotenba, and Shoji Akahane, Tokyo, all of Japan, assignors to G-C Dental Industrial Corp., Tokyo, Japan

Filed May 14, 1981, Ser. No. 263,724
Claims priority, application Japan, Jun. 4, 1980, 55-74409
Int. Cl.³ C08K *5/09*
U.S. Cl. 523—116 **8 Claims**

1. A liquid for setting dental cements in which a 45 to 55% aqueous solution of a copolymer of acrylic acid and maleic acid contains a tetrahydrofurantetracarboxylic acid in an amount ranging from 10 to 30% based on the total weight.

4,374,937

DISPERSIONS OF SILICEOUS SOLIDS IN LIQUID ORGANIC MEDIA

Jozef Nemcek, Chester; Thomas A. Roberts, Congleton, and Francis R. Sherliker, Runcorn, all of England, assignors to Imperial Chemical Industries Limited, London, England

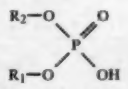
Continuation of Ser. No. 106,861, Dec. 26, 1979, abandoned. This application Jul. 1, 1981, Ser. No. 279,319
Claims priority, application United Kingdom, Jan. 5, 1979, 7900363; Jan. 5, 1979, 7900364; Jan. 5, 1979, 7900366; Jan. 5, 1979, 7900367; Apr. 4, 1979, 7911712
Int. Cl.³ C08J *3/20*; C08K *5/17, 5/52*
U.S. Cl. 523—116 **27 Claims**

1. A composition comprising the following components (a–c) intimately mixed together

(a) a particulate siliceous material having particles below 10 μm in their longest dimension,

(b) a liquid or liquifiable polymerizable organic medium,

(c) a dispersing agent containing a mixture of compounds comprising a phosphorus oxyacid having the formula



wherein R_1 is an organic group containing a terminal chain which is either a hydrocarbon group having at least six carbon atoms or a polyether of molecular weight greater than 200 (preferably from 500–10,000) R_2 is either a group as specified for R_1, a hydrogen atom, or a hydrocarbyl or substituted hydrocarbyl group not having a terminal chain of at least six carbon atoms and an organic basic nitrogen compound having the formula

wherein Z_1 is a group as specified for R_1 before and Z_2 and Z_3 which may be the same or different, are as specified for R_2 before.

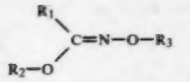
4,374,938

PROCESS FOR THE DEGRADATION OF POLYMERS

Willem F. Verheist, Gorssel, and Ulfert E. Wiersum, Velp, both of Netherlands, assignors to Akzona Incorporated, Asheville, N.C.

Filed Feb. 20, 1981, Ser. No. 236,343
Claims priority, application Netherlands, Feb. 29, 1980, 8001231
Int. Cl.³ C08K 5/32
U.S. Cl. 523—124 18 Claims

1. In an improved process for degradation of polymers, the improvement comprises employing as a free radical initiator a compound of the formula

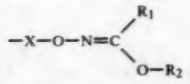


wherein

R_1 is selected from the class consisting of substituted or unsubstituted: C_1–C_{22} alkyl, C_2–C_{22} alkenyl, C_6–C_{20} cyclohexyl, C_6–C_{20}, phenyl, and C_7–C_{20} aralkyl;

R_2 is selected from the class consisting of substituted or unsubstituted: C_1–C_{20} alkyl, C_2–C_{20} alkenyl, C_6–C_{20} cyclohexyl, C_6–C_{20} phenyl, C_7–C_{20} aralkyl, C_2–C_{21} alkylcarbonyl, C_3–C_{21} alkenylcarbonyl, C_7–C_{21} cyclohexylcarbonyl, C_7–C_{21} phenylcarbonyl, C_8–C_{21} aralkylcarbonyl, C_7–C_{21} alkoxycarbonyl, C_3–C_{21} alkenyloxycarbonyl, C_7–C_{21} cyclohexyloxycarbonyl, C_7–C_{21} phenoxycarbonyl and C_8–C_{21} aralkyloxycarbonyl; and

R_3 is hydrogen, a group selected from the class consisting of substituted or unsubstituted: C_1–C_{20} alkyl, C_2–C_{20} alkenyl, C_6–C_{20} cyclohexyl, C_6–C_{20} phenyl, C_7–C_{20} aralkyl, C_2–C_{21} alkylcarbonyl, C_3–C_{21} alkenylcarbonyl C_7–C_{21} cyclohexylcarbonyl, C_7–C_{21} phenylcarbonyl, C_8–C_{21} aralkylcarbonyl, C_7–C_{21} alkoxycarbonyl, C_3–C_{21} alkenyloxycarbonyl, C_7–C_{21} cyclohexyloxycarbonyl, C_7–C_{21} phenyloxycarbonyl and C_8–C_{21} aralkyloxycarbonyl; a



group wherein X is substituted or unsubstituted: C_1–C_{12} alkylene, C_2–C_{12} alkenylene, C_6–C_{12} cycloalkylene or phenylene; or a

group wherein Y is substituted or unsubstituted: C_1–C_{20} alkyl, C_6–C_{20} cycloalkyl or phenyl.

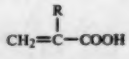
4,374,939

MOLD WASH COMPOSITION

James Van Fisk, Jr., and John W. Jordan, both of Houston, Tex., assignors to NL Industries, Inc., New York, N.Y.

Filed Dec. 31, 1979, Ser. No. 108,534
Int. Cl.³ C08K 3/34
U.S. Cl. 523—139 47 Claims

1. A composition for use in a mold wash formulation comprising an intimate, dry mixture of a water soluble polymer of a monoolefinic carboxylic acid monomer having the general formula:



wherein R is selected from the class consisting of hydrogen, monovalent alkyl radicals, monovalent aryl radicals, monovalent aralkyl radicals, monovalent alkaryl radicals and monovalent cycloaliphatic radicals, a clay having a liquid limit number of greater than 600 with high swelling capacity in water, and a solids suspension control additive comprising (a) a flocculant comprising a water soluble salt of a polyvalent metal ion, and (b) a peptizing agent.

4,374,940

ANAEROBIC COMPOSITIONS

Yog R. Bhatia, Glen Ellyn, Ill., assignor to The Henkel Corporation, Minneapolis, Minn.

Filed Jun. 16, 1981, Ser. No. 274,106
Int. Cl.³ C08F 2/38, 4/28, 22/06
U.S. Cl. 523—176 12 Claims

1. An anaerobic curing composition comprising a compound capable of curing under anaerobic conditions, the improvement thereon comprising including in the composition a member selected from the group consisting of a meta-dialkyl substituted toluidine wherein the alkyl groups are selected from the group consisting of ethyl, n-propyl, isopropyl, n-butyl, 1-methyl propyl and 2-methyl propyl and mixtures thereof said composition being substantially free of a stabilizing inhibitor said inhibitor being present at not more than 300 ppm based on the total weight of the composition, wherein the inhibitor has an oxidation-reduction potential of 0.6 volt or less.

4,374,941

PARTICLE SIZE CONTROL OF SBR/CARBON BLACK POWDER

Paul H. Sandstrom, Tallmadge, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Aug. 27, 1981, Ser. No. 297,035
Int. Cl.³ C08J 3/16, 3/22; C08K 3/04, 9/04
U.S. Cl. 523—206 9 Claims

1. A process for the production of tack-free, pourable, filler containing elastomer powder which comprises

(a) dispersing a reinforcing type carbon black filler in water, said carbon black being selected from the group consisting of high abrasion furnace (HAF), intermediate super abrasion fuurnace (ISAF), and fast extrusion furnace (FEF),

(b) mixing the thus dispersed carbon black filler with an elastomer latex, said latex being selected from the group of styrene/butadiene rubbers, acrylonitrile/butadiene rubbers, polypropylene rubbers, polybutadiene rubbers, polyisoprene rubbers, and copolymers of dimethyl butadiene/-butadiene rubbers, the improvement comprising

(c) coagulating the thus produced mixture of elastomer latex and carbon black with a two-stage coagulating process, comprising first coagulating the mixture of elastomer latex and carbon black by the use of a dilute salt/acid solution at a pH 3–5, at temperatures varying from 30 to 90° C. wherein the concentration of salt varies between 2–20 parts per hundred of rubber, and the concentration of the salt in the solution may vary between 0.1 and 1.0 percent, and then conducting the second stage coagulation of the mixture by adding sufficient alum to give a concentration of 1 to 10 parts of alum per 100 parts of rubber, adjusting the pH of the mixture to a pH of 2 to 3 with dilute sulfuric acid,

(d) partitioning the thus coagulated suspension with a coating resin by adding a dilute solution of a coating resin to the coagulated particles formed during the first stage coagulation while maintaining the temperature between 70° C. and 90° C. and

(e) filtering, washing and drying the resultant powder dispersion, an additional improvement comprising using as a coating resin a mixture of a styrene/butadiene resin and a styrene/α-methylstyrene or a polystyrene resin wherein the weight ratio of the styrene/butadiene resin to the styrene/α-methylstyrene or polystyrene resin ranges between 4/1 and 1/4, said resins containing a mixture of

added surfactants, the first being sodium lauryl sulfate and the second being a nonionic isooctyl phenoxy polyethoxy ethanol which contains 10 moles of ethylene oxide in the polyethoxy portion thereof, said mixture of surfactants being added in an amount at least 4 percent by weight and being in a weight ratio of sodium lauryl sulfate to the nonionic surfactant ranging from 2/1 to 1/2.

4,374,942
POWDER HAVING A NEGATIVE COEFFICIENT OF LINEAR THERMAL EXPANSION AND A COMPOSITION CONTAINING THE SAME

Akio Takami, and Kazuo Kondo, both of Aichi, Japan, assignors to NGK Spark Plug Co., Ltd., Aichi, Japan

Division of Ser. No. 301,860, Sep. 14, 1981, which is a division of Ser. No. 77,810, Sep. 21, 1979, Pat. No. 4,310,598. This application Jun. 9, 1982, Ser. No. 386,811

Claims priority, application Japan, Sep. 21, 1978, 53-116318; Jan. 5, 1979, 54-41

Int. Cl.[3] **B32B** *15/16, 17/06, 27/20*

U.S. Cl. 523—210 **6 Claims**

1. A sealing composition having a low expansivity which consisting essentially of 50% by weight or less of a β-eucryptite particle having on the surface thereof a single layer of or multiple layers of a member selected from the group consisting of tin oxide, titanium oxide, zirconium oxide and a mixture of two or more of said oxides, said oxides being present in a thickness of about 1μ or less; and a resin.

4,374,943
POLYSULFIDE ALKOXY SILANE COUPLING AGENTS

Thomas C. Williams, Ridgefield, Conn., assignor to Union Carbide Corporation, Danbury, Conn.

Continuation-in-part of Ser. No. 79,499, Sep. 27, 1979, abandoned. This application Jan. 27, 1981, Ser. No. 228,947

Int. Cl.[3] **C08K** *9/12*

U.S. Cl. 523—211 **7 Claims**

1. A dry concentrate which comprises (I) a triorganophosphine of the formula $R^1R^2R^3P$, wherein each of R^1, R^2, and R^3 represents an alkyl radical having up to eight carbon atoms, (II) water, (III) lower alkanol, and (IV) porous inert inorganic solid.

4,374,944
ABS COMPOSITION CONTAINING COAL TAR PITCH

Donald G. Ashburn, and Glendon T. Steady, both of Baton Rouge, La., assignors to United States Steel Corporation, Pittsburgh, Pa.

Filed Mar. 18, 1981, Ser. No. 244,855

Int. Cl.[3] **C08L** *95/00*

U.S. Cl. 524—66 **12 Claims**

1. An extended ABS type resinous plastic composition consisting essentially of:

(a) polymerized acrylonitrile, butadiene and styrene constituting together at least about 50 percent of the composition by weight; and

(b) coal tar pitch intimately mixed with said polymerized acrylonitrile, butadiene and styrene and constituting up to about 40 percent of said composition by weight.

4,374,945
THIOGLYCOLATE AND THIOPROPIONATE SECONDARY STABILIZERS

Koei-Liang Liauw, Wyckoff, and Michael H. Fisch, Wayne, both of N.J., assignors to Witco Chemical Corporation, New York, N.Y.

Filed Mar. 11, 1981, Ser. No. 242,741

Int. Cl.[3] **C07D** *407/12, 303/42, 303/44;* **C08K** *5/58, 5/57, 5/56, 5/36*

U.S. Cl. 524—114 **17 Claims**

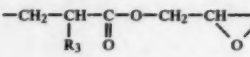
1. A thioglycidyl ester compound having the formula R_1-S_y-A-S_y-R_2, wherein

A is $(CH_2)_x$—O_n—$(CH_2)_x$

x is 0 to 2; n is 0 or 1;

y is 0 or 1, with the proviso that at least one y is 1;

R_1 is



with R_3 being alkyl having one to about six carbon atoms or hydrogen; and R_2 may be R_1; an alkyl having one to about twelve carbon atoms, or carbalkoxy having one to about twelve carbon atoms in the alkoxy group.

4. A stabilizer composition for a vinyl halide, polymer, comprising a primary vinyl halide polymer stabilizer selected from the group consisting of an organometallic compound, an epoxy compound and a metal carboxylate and a thioglycidyl ester compound having the formula:

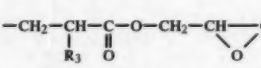
wherein:

A is $(CH_2)_x$—O_n—$(CH_2)_x$

x is 0 to 2; n is 0 or 1;

y is 0 or 1, with the proviso that at least one y is 1;

R_1 is



with R_3 being alkyl having one to about 6 carbon atoms or hydrogen; R_2 is R_1, lower alkyl having one to about 12 carbon atoms, or carbalkoxy having one to about 12 carbon atoms in the alkoxy group.

15. A stabilized halogen containing resin composition comprising 0.1 to 10% based on the weight of the resin of a stabilizer composition according to claim 4.

4,374,946
CONCRETE JOINT SEALANT

Yoshifumi Takemura, and Hirokazu Miyazaki, both of Hiroshima, Japan, assignors to Aoi Chemical Inc., Hiroshima, Japan

Filed Sep. 22, 1981, Ser. No. 304,602

Claims priority, application Japan, Sep. 29, 1980, 55-135610

Int. Cl.[3] **C08L** *93/04*

U.S. Cl. 524—271 **7 Claims**

1. A sealant for concrete joints comprising tall pitch, atactic polypropylene, non-reclaimed rubber and 4.8 to 45 weight percent of aliphatic hydrocarbon resin.

4,374,947

METHOD FOR THE THERMAL STABILIZATION OF SULFUR-VULCANIZABLE ELASTOMERS OF THIODIETHANOL

Richard B. Toothill, Warren, and Romeo R. Aloia, Bridgewater, both of N.J., assignors to American Cyanamid Company, Stamford, Conn.

Continuation-in-part of Ser. No. 28,016, Apr. 6, 1979, abandoned. This application May 24, 1982, Ser. No. 381,496

Int. Cl.³ C08K *5/09, 3/32, 3/30, 3/26, 3/22*

U.S. Cl. 524—398 **9 Claims**

1. A method for improving the thermal stability of a vulcanizable elastomer of thiodiethanol which is not thermally stable which comprises incorporating therein a thermal stabilizing amount of a copper salt selected from the group consisting of cuprous chloride, cuprous bromide, cuprous sulfide, cuprous thiocyanate, cupric phosphate, cupric hydroxide, cupric sulfide, cupric carbonate and cupric salts of C_1–C_{18} monocarboxylic acids, said elastomer of thiodiethanol being represented by the formula:

$$H\text{+}OG\text{+}_nOH \quad (I)$$

wherein +OG+ comprises a copolymer of randomly alternating structural units selected from:

(A) structural units (II) and (III)

$$\text{+}OC_2H_4SC_2H_4\text{+} \quad (II)$$

$$\text{+}OR\text{+} \quad (III)$$

wherein R represents one or more radicals remaining on removal of two hydroxyl groups from (a) aliphatic saturated linear, branched chain or cyclic diols, or (b) aliphatic linear, branched chain or cyclic diols containg external unsaturation and having an allylic hydrogen atom; and

(B) structural units (II), (III) and (IV)

$$\text{+}OR'\text{+} \quad (IV)$$

wherein R′ represents the radical remaining on removal of two hydroxyl groups from a diphenolic compound; said copolymer comprising structural units (A) and (B) being characterized in that (1) n is an integer sufficient to provide in said copolymer a molecular weight of at least about 8000; (2) the molar ratio of structural units (II) to (III), when the polymer comprises structural units (A), or the molar ratio of structural units (II) to the total of (III) and (IV), when the polymer comprises structural units (B), is not less than about 1:1; and (3) the polymers contain from 1 to 10 mole percent of said diol (b), based on the total of all units (II), (III) and (IV) present in said polymer.

4,374,948

HIGH NITRILE COPOLYMER LATEX COATING

Richard C. Adams, Chardon, and Steven J. Waisala, Shaker Heights, both of Ohio, assignors to The Standard Oil Company, Cleveland, Ohio

Filed May 26, 1981, Ser. No. 266,778

Int. Cl.³ C08K *5/34*

U.S. Cl. 524—516 **14 Claims**

1. A coating composition comprising (1) a water soluble polymeric thickener comprising a homopolymer or copolymer of vinyl pyrrolidone which has an intrinsic viscosity greater than 0.75 dl/gm, and (2) a latex produced by polymerization in aqueous medium of a major portion of a monounsaturated nitrile having the structure

$$CH_2{=}C(R){-}N$$

wherein R is hydrogen, a lower alkyl group having from 1 to 4 carbon atoms or a halogen, and a minor portion of at least one monovinyl monomer copolymerizable therewith optionally in the presence of a preformed diene rubber.

4,374,949

COMPOSITION AND PROCESS FOR MAKING A GREEN COLORED POLYESTER

Fred L. Massey, Uniontown, and Douglas D. Callander, Akron, both of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Oct. 27, 1980, Ser. No. 198,071

Int. Cl.³ C08L *67/02*

U.S. Cl. 524—720 **30 Claims**

1. In a polyester article the improvement comprising:

a small amount of various color-imparting compounds contained in the polyester for imparting a green color thereto, said compounds comprising an iron compound, a titanium catalyst, and a blue pigment, said iron compound being a preformed alpha-ferric oxide or an iron salt which is thermally decomposed during polymerization of said polyester to an alpha-ferric oxide,

the proportion of said compounds being sufficient to effect a green color.

4,374,950

ADHESIVE POLYORGANOSILOXANE COMPOSITION

Chiyuki Shimizu, Oota, Japan, assignor to Toshiba Silicone Co., Ltd., Tokyo, Japan

Filed Oct. 29, 1981, Ser. No. 316,172

Claims priority, application Japan, Oct. 29, 1980, 55/151891

Int. Cl.³ C08K *5/05*

U.S. Cl. 524—765 **12 Claims**

1. An adhesive polyorganosiloxane composition comprising:

(A) a polydiorganosiloxane end-blocked by silanol groups and having a viscosity of 100–200,000 cSt at 25° C.;

(B) an aminoxy group-containing organosilicon compound having more than 2 organoaminoxy groups per molecule on the average;

(C) an inorganic filler; and

(D) a monohydric alcohol having the formula R—OH, in which R is a primary or secondary hydrocarbon group selected from the group consisting of a monovalent saturated aliphatic hydrocarbon group and an aralkyl group, and having a vapor pressure of at least 0.1 mmHg at 20° C.

4,374,951

POLYBLENDS COMPRISING N-PHENYLMALEIMIDE COPOLYMERS AND SAN COPOLYMERS

Yoon C. Lee, deceased, late of Springfield, Mass. by Nancy J. Lee, administratrix; Gary L. Deets, and Quirino A. Trementozzi, both of Springfield, Mass., assignors to Monsanto Company, St. Louis, Mo.

Filed Sep. 11, 1981, Ser. No. 301,333

Int. Cl.³ C08L *33/24, 51/04, 25/12*

U.S. Cl. 525—73 **5 Claims**

1. A polyblend comprising:

A. a copolymer having from 40 to 55% by weight of N-phenyl maleimide, from 0 to 10% by weight of acrylonitrile and from 35 to 60% by weight of a vinylaromatic monomer; and

B. a copolymer of a vinyl aromatic monomer and from 20 to 40% by weight of acrylonitrile.

4,374,952

NITRILE RUBBER/EPDM GRAFT BLENDS

Charles D. Shedd, Naugatuck, and Allen L. Stone, Cheshire, both of Conn., assignors to Uniroyal, Inc., New York, N.Y.

Filed Jul. 14, 1980, Ser. No. 168,874
Int. Cl.³ C08L 9/02, 51/04
U.S. Cl. 525—87 15 Claims

1. A polymer blend composition which comprises:
(A) a butadiene-acrylonitrile copolymer elastomer; and
(B) a graft polymer comprising
(1) an EPDM substrate, onto which has been grafted a superstrate which is
(2) an acrylonitrile resin,
wherein the weight ratio of (A) to (B) is about 95:5 to 5:95.

4,374,953

METHOD FOR PREPARING POLYACETALS AND POLYKETALS BY EMULSION POLYMERIZATION

Yungnien J. Chou, and John C. Saam, both of Midland, Mich., assignors to Dow Corning Corporation, Midland, Mich.

Filed Apr. 19, 1982, Ser. No. 369,690
Int. Cl.³ C08F 8/28; C08L 61/00
U.S. Cl. 525—153 37 Claims

1. A method for preparing polyacetals and polyketals by emulsion polymerization, said method comprising the steps of
(1) emulsifying in an aqueous medium a mixture comprising
(a) at least one reagent containing at least 5 carbon atoms and 2 or more hydroxyl groups or 2 or more esterified hydroxyl groups of the formula RCOO— where R is alkyl and contains from 1 to 3 carbon atoms and the hydroxyl or esterified hydroxyl groups are bonded to aliphatic or cycloaliphatic carbon atoms,
(b) at least one carbonyl compound containing at least 5 carbon atoms or a reaction product of said carbonyl compound and a water-soluble monofunctional alcohol containing from 1 to 3 carbon atoms, said carbonyl compound being selected from the group consisting of mono- and polyfunctional aldehydes and mono- and polyfunctional ketones wherein the carbonyl groups of the carbonyl compound are bonded to aliphatic or cycloaliphatic carbon atoms, and
(c) at least one polycondensation catalyst in an amount effective to accelerate the rate of reaction of (a) with (b), and
(2) thereafter allowing (a) and (b) to react until the desired product is obtained.

4,374,954

POWDER PAINT WITH EPOXY AND HYDROXY COPOLYMER AND ANHYDRIDE

Santokh S. Labana, Dearborn Heights, and Ares N. Theodore, Farmington, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Continuation-in-part of Ser. No. 394,879, Sep. 6, 1973, abandoned. This application Feb. 24, 1975, Ser. No. 552,511
The portion of the term of this patent subsequent to Jan. 13, 1993, has been disclaimed.
Int. Cl.³ C08F 8/46
U.S. Cl. 525—207 16 Claims

1. In a thermosettable powder paint which exclusive of pigments, antistatic agents, and plasticizers, the same being conventional non-reactive additives to a thermosettable powder paint, consists essentially of a coreactable mixture of
1. copolymer consisting essentially of about 5 to about 20 weight percent of a glycidyl ester of a monoethylenically unsaturated acid and about 80 to about 95 weight percent of other monoethylenically unsaturated monomers, and having a glass transition temperature in the range of about 40° C. to about 90° C. and a molecular weight ($\overline{M}_n$) in the range of about 1500 to about 15,000, and,
2. an anhydride crosslinking agent selected from the group consisting of
(a) monomeric anhydrides of dicarboxylic acids, and
(b) homopolymers of anhydrides of dicarboxylic acids, and
3. 0.05 to 4.0 weight percent of a non-reactive polymeric flow control agent based on the weight of said coreactable mixture and having molecular weight ($\overline{M}_n$) of at least 1000 and glass transition temperature at least 20° C. below the glass transition temperature of said copolymer,
the improvement wherein said copolymer is qualitatively difunctional and said other monoethylenically unsaturated monomers consist essentially of difunctional monomers selected from the group consisting of C_5–C_7 hydroxyalkyl acrylates and C_5–C_7 hydroxyalkyl methacrylates in an amount comprising about 2 to about 10 weight percent of said copolymer and monoethylenically unsaturated monomers consisting essentially of monofunctional monomers selected from the group consisting of esters of a C_1–C_8 monohydric alcohol and acrylic acid, esters of a C_1–C_8 monohydric alcohol and methacrylic acid and C_8–C_{12} monovinyl hydrocarbons.

4,374,955

N-BUTYL ACRYLATE POLYMER COMPOSITION FOR SOLAR CELL ENCAPSULATION AND METHOD

Amitava Gupta, Pasadena; John D. Ingham, and Andre H. Yavronian, both of La Crescenta, all of Calif., assignors to California Institute of Technology, Pasadena, Calif.

Filed Jun. 11, 1980, Ser. No. 158,575
Int. Cl.³ C08L 51/00, 33/08
U.S. Cl. 525—281 7 Claims

1. A polymer syrup comprising:
40% to 70% by weight of a linear, uncrosslinked poly (n-butyl) acrylate prepolymer having a molecular weight between 100,000 and 600,000 dissolved in
30% to 60% by weight of n-butyl acrylate monomer.

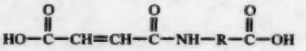
4,374,956

OLEFIN POLYMER MODIFIED WITH SUBSTITUTED MALEAMIC ACID

Aubert Y. Coran, and Raman Patel, both of Akron, Ohio, assignors to Monsanto Company, St. Louis, Mo.

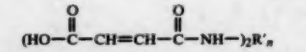
Continuation of Ser. No. 128,611, Mar. 10, 1980, abandoned. This application Sep. 17, 1981, Ser. No. 303,304
Int. Cl.³ C08F 8/30
U.S. Cl. 525—296 12 Claims

1. A modified olefin polymer comprising the reaction product of monoolefin polymer, about 0.1 to about 20 weight of a substituted maleamic acid of the formulas



(a)

in which R is a straight or branched alkylene radical of 1–18 carbon atoms, or



(b)

in which n is zero or one, and R′ is a straight or branched alkylene radical of 2–18 carbon atoms or arylene of 6–12 car-

bon atoms and 0.1 to 50 parts by weight of a radical generator per 100 parts by weight of substituted maleamic acid.

4,374,957

TRIBLOCK POLYMERS OF A MONOVINYL AROMATIC COMPOUND AND MYRCENE

Roderic P. Quirk, Midland, Mich., assignor to Michigan Molecular Institute, Midland, Mich.

Filed Oct. 29, 1981, Ser. No. 316,299
Int. Cl.³ C08F 297/04
U.S. Cl. 525—314 3 Claims

1. A solvent soluble clear thermoplastic elastomeric linear triblock polymer of a monovinyl aromatic hydrocarbon and myrcene corresponding to the general formula A-B-A in which each A is a nonelastic linear homopolymer block of a monovinyl aromatic hydrocarbon having an average molecular weight between 10,000 and 60,000 and a glass transition temperature above 70° C., B is an elastomeric homopolymeric block of myrcene having an average molecular weight between 50,000 and 200,000 and a glass transition temperature below about −40° C., and B constitutes between about 40 and about 80 percent by weight of the total, the tripolymer exhibiting tacky consistency.

4,374,958

CROSSLINKABLE COMPOSITIONS BASED ON ALKYLENE-ALKYL ACRYLATE COPOLYMERS CONTAINING A POLYOL, AN ORGANO TITANATE AND A MOLECULAR SIEVE

Austin E. Barnaheo, Bridgewater, N.J., assignor to Union Carbide Corporation, Danbury, Conn.

Filed Dec. 18, 1981, Ser. No. 332,274
Int. Cl.³ C08L 33/08
U.S. Cl. 525—384 20 Claims

1. A crosslinkable composition comprising an alkylene-alkyl acrylate copolymer, a primary, polyhydric alcohol wherein primary hydroxyl groups are attached to non-adjacent carbon atoms in an amount sufficient to crosslink said copolymer, an organo titanate in an amount sufficient to catalyze the crosslinking reaction between the primary, polyhydric alcohol and the alkylene-alkyl acrylate copolymer and a molecular sieve in an amount sufficient to retard the crosslinking reaction.

4,374,959

BLOCK COPOLYMERS OF POLYPHENYLENE OXIDES AND NON-STERICALLY-HINDERED HIGH MOLECULAR WEIGHT AROMATIC POLYCARBONATES

George R. Loucks, Scotia, and John R. Campbell, Clifton Park, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Division of Ser. No. 250,338, Apr. 2, 1981. This application Oct. 8, 1981, Ser. No. 309,626
Int. Cl.³ C08L 71/04, 69/00
U.S. Cl. 525—394 6 Claims

1. A process of forming a block copolymer of polyphenylene oxide and an non-sterically-hindered high molecular weight aromatic polycarbonate comprising the following process sequence:

(1) Forming an agitated two-phase mixture comprising,

(i) an organic phase containing a polyphenylene oxide, an nonsterically hindered-aromatic dihydroxy compound, an inert organic solvent, a tertiary amine, and, optionally, a sterically hindered-aromatic dihydroxy compound,

(ii) an aqueous phase containing a solution of an alkali metal hydroxide having a pH value of at least 11,

(2) Adding and reacting a carbonyl halide with both the polyphenylene oxide and the nonsterically hindered-aromatic dihydroxy compound plus any, optional sterically hindered-aromatic dihydroxy compound, to form a block copolymer and

(3) Recovering the polyphenylene oxide and nonsterically hindered-aromatic polycarbonate block copolymer.

4,374,960

PRODUCTION OF POLYESTER FIBERS OF IMPROVED STABILITY

Ronald E. Rothwell, Colonial Heights, Va.; Hugh H. Rowan, Chapel Hill, and James J. Dunbar, Cary, both of N.C., assignors to Allied Corporation, Morris Township, Morris County, N.J.

Filed Sep. 16, 1981, Ser. No. 302,908
Int. Cl.³ C08G 69/48; C08L 77/06
U.S. Cl. 525—436 7 Claims

1. A process for the preparation of high molecular weight linear polyethylene terephthalate condensation polyesters, said polyesters being characterized by improved hydrolytic stability and by reduction in the free carboxyl content so as to have a carboxyl concentration of less than about 5 gram equivalents per 10^6 grams of polyester, the process comprising the steps of adding an end capping reagent in an amount of about 5 to 170 gram moles per 10^6 grams of polyester, wherein the end capping reagent is selected from the group consisting of N-epoxyalkylimides of dicarboxylic acids, long chain aliphatic epoxides, ethylene carbonate, diazomethane, monoglycidyl ethers, and mixtures thereof, to particles of the said linear polyester, heating the mixture to obtain a substantially homogeneous mixture of said polyester, while subjecting said mixture to extrusion and spinning for a residence time of about 5 to 10 minutes to produce monofilaments of said linear polyester of reduced free carboxyl content of less than about 5 gram equivalents per 10^6 grams of polyester.

4,374,961

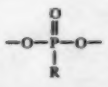
METHOD FOR MANUFACTURING HEAT-STABLE POLYESTERS USING PHOSPHONIC ACID COMPOUNDS WITH CYCLIC CARBONATES AND CATALYST

Kazushige Kudo; Yoshihiro Arai, both of Joyo; Ryoichi Tsurutani, and Shun-ichi Kiriyama, both of Uji, all of Japan, assignors to Unitika Limited, Osaka, Japan

Filed May 29, 1981, Ser. No. 268,312
Claims priority, application Japan, May 9, 1980, 55-78143
Int. Cl.³ C08G 63/76
U.S. Cl. 525—439 6 Claims

1. In a method to manufacture heat-stable polyester using cyclic carbonate compounds catalyzed with an alkali halide compound, the improvement comprising

adding a phosphonic acid compound of the structure



wherein R is hydrogen, a monovalent hydrocarbon group with a carbon atom number of 1–18, R_4OH, $COOR_5$, or R_6COOR_7; R_4 and R_6 are difunctional hydrocarbon groups with carbon atom numbers of 1–18; R_5 and R_7 are hydrogen, monofunctional hydrocarbon groups with carbon atom numbers of 1–18 or R_4OH.

4,374,962

ADHESIVE FOR POLYESTER FIBROUS MATERIAL

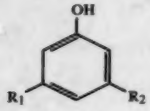
Toshihiro Yotsumoto, Higashimurayama, and Kazuo Koyama, Sayama, both of Japan, assignors to Bridgestone Tire Company Limited, Tokyo, Japan

Filed Apr. 6, 1982, Ser. No. 366,032
Claims priority, application Japan, Apr. 10, 1981, 56-52937
Int. Cl.³ C08G 8/20, 8/24
U.S. Cl. 525—442 2 Claims

1. An adhesive for polyester fibrous material, comprising an

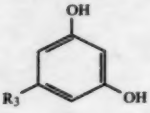
alkylphenol/alkylresorcin/formaldehyde cocondensate having substantially an average molecular weight of 300–600 and obtained by condensing

a compound selected from compounds represented by a general formula



wherein R_1 represents a hydrogen atom or an alkyl group having 1–3 carbon atoms and R_2 represents an alkyl group having 1–4 carbon atoms, and

a compound selected from compounds represented by a general formula



wherein R_3 represents an alkyl group having 1–3 carbon atoms, together with formaldehyde in the presence of an acidic catalyst.

4,374,963

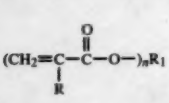
HEAT CURABLE EPOXY-ACRYLATE COMPOSITIONS

Charles R. Morgan, Brookeville, and David R. Kyle, Columbia, both of Md., assignors to W. R. Grace & Co., New York, N.Y.

Filed Nov. 2, 1981, Ser. No. 317,648
Int. Cl.³ C08G *59/40, 59/68*
U.S. Cl. 525—486 **4 Claims**

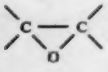
1. A heat curable composition comprising

(a) a liquid, ethylenically unsaturated monomer, oligomer or prepolymer of the formula:



wherein R is H or CH_3, R_1 is an organic moiety and n is at least 2,

(b) an epox resin containing at least two



groups, and

(c) a thermal initiator member of the group consisting of

(1) a substituted or unsubstituted diaryliodonium salt in combination with a free radical initiator,

(2) a BF_3 adduct,

(3) a BF_3 adduct in combination with a free radical initiator, and

(4) dicyandiamide in combination with a free radical initiator.

4,374,964

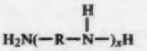
METHOD OF PREPARING HIGH MOLECULAR WEIGHT POLYAMINES

Kenneth G. Phillips, River Forest, and Paul J. Harris, Orland Park, both of Ill., assignors to Nalco Chemical Company, Oak Brook, Ill.

Division of Ser. No. 98,454, Nov. 29, 1979, Pat. No. 4,287,331.
This application May 20, 1981, Ser. No. 265,662
Int. Cl.³ C08G *61/12*
U.S. Cl. 525—540 **4 Claims**

1. An improved process for making high molecular weight polyamine comprising:

reacting, in the presence of a self-limiting neutralizing agent, an alkylene dihalide selected from the group consisting of ethylene and 1,2-propylene dihalides with a nitrogen containing compound having the structural formula



where x is an integer of 0–5 and R is an alkylene radical selected from the group consisting of

to produce said polyamine and an acid by-product,

said self-limiting agent being present at the outset of the reaction in an amount sufficient to neutralize substantially all of said acid by-product produced from the reaction,

said self-limiting agent being a basic reagent with a sufficiently low, aqueous solubility and K_b for neutralizing said acid by-product as it is produced while maintaining the pH of said reaction at a generally constant alkaline value; and

reacting said polyamine with a quaternizing agent.

4,374,965

ALKALINE RESISTANT ORGANIC COATINGS FOR CORROSION SUSCEPTIBLE SUBSTRATES II

Ray A. Dickie, Birmingham, and Joseph W. Holubka, Livonia, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Continuation of Ser. No. 938,677, Aug. 31, 1978, abandoned.
This application Apr. 10, 1980, Ser. No. 139,069
Int. Cl.³ C08Z *63/00*
U.S. Cl. 525—510 **5 Claims**

1. A solvent based primer composition that retards corrosion in substantial absence of chromate corrosion inhibiting pigments which comprises an intimate admixture of film forming ingredients consisting essentially of:

(A) A substantially gel free epoxy and amine reaction product which contains no ester linkages and which is made by reacting in non-aqueous medium reactants consisting essentially of:

1. An epoxy resin reactant having two 1,2-epoxy groups per molecule which is the reaction product of bisphenol A and epichlorohydrin and has an epoxide equivalent weight range from at least about 875 to 4,000; and

2. An amine reactant selected from the group consisting of secondary monoamines having a total of up to about 20 carbons, and comprising at least about 75 mole percent hydroxy amine containing one or more hydroxy groups removed at least one carbon from the amino nitrogen in a stoichiometric amount such that the reaction product (A) comprises tertiary amino and primary and secondary hydroxy groups and is substantially free of unreacted epoxy groups;

(B) a di- or polyhydroxy compound; and

(C) An amine aldehyde resin crosslinking agent at about 5–30% by weight of the combined weight (A) and (B).

4,374,966

PROCESS FOR THE MANUFACTURE OF VINYL CHLORIDE POLYMERS BY COATING POLYMERIZATION VESSELS

Edgar Fischer, Frankfurt am Main; Johannes Brandrup, Wiesbaden, and Jürgen Weinlich, Eppstein, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

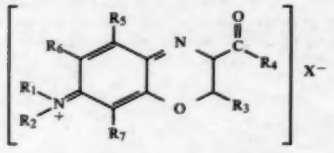
Filed Nov. 14, 1980, Ser. No. 206,960

Claims priority, application Fed. Rep. of Germany, Nov. 17, 1979, 2946461

Int. Cl.³ C08F 2/18, 14/06

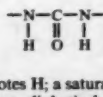
U.S. Cl. 526—62 3 Claims

1. A process for the manufacture of vinyl chloride homopolymers or copolymers which contain at least 50% by weight of polymerized vinyl chloride units, by polymerization of the monomer or monomer mixture in aqueous dispersion comprising radical-forming catalysts and suspension stabilizers, said process comprises carrying out the polymerization in a reactor of which internal walls thereof, and the other parts thereof on which polymer deposits can form, are provided with a compound of the general formula



in which the individual substituents have the following meanings: R_1 to R_2 is H or a saturated hydrocarbon radical with 1–8 C-atoms; R_3 or R_4 is a saturated hydrocarbon radical with 1–8 C-atoms, OH, or

in which R′ and R″ have the same meaning as for R_1 or R_2, or denote an aromatic radical with 6 to 10 carbon atoms, or R_4 denotes an O-aliphatic hydrocarbon radical with 1–6 C-atoms; or R_3 and R_4 denote $—CH_2—CH_2—CH_2—$or



each of R_5, R_6, R_7 denotes H; a saturated hydrocarbon radical with 1–8 C-atoms; or an aliphatic hydrocarbon radical with 1–6 C-atoms; or R_5 and R_6 is an isocyclic or heterocyclic aromatic radical with 6 to 10 C-atoms; and X is a monovalent anion or a corresponding anion equivalent.

4,374,967

LOW TEMPERATURE SILICONE GEL

Paul L. Brown, Saginaw; Ch'-Long Lee, and Myron T. Maxson, both of Midland, all of Mich., assignors to Dow Corning Corporation, Midland, Mich.

Continuation-in-part of Ser. No. 280,669, Jul. 6, 1981, abandoned. This application Feb. 8, 1982, Ser. No. 346,804

Int. Cl.³ C08G 77/06

U.S. Cl. 528—15 10 Claims

1. A curable siloxane composition comprising an intimate mixture consisting essentially of:

(1) a polyorganosiloxane consisting essentially of 80 to 96.5 mol % of $(CH_3)_2SiO$, 2.0 to 10.0 mol % of $CH_3SiO_{1.5}$, 1.25 to 6.0 mol % of $(CH_3)_3SiO_{0.5}$, and 0.25 to 4.0 mol % of $(CH_3)_2(CH_2{=}CH)SiO_{0.5}$;

(2) an organohydrogensiloxane having an average of more than one silicon-bonded hydrogen atom per molecule and no more than one silicon-bonded hydrogen atom per silicon atom and organic radicals selected from the group consisting of alkyl radicals having from one to six carbon atoms per radical, phenyl and 3,3,3-trifluoropropyl, said organohydrogensiloxane providing an average of 0.2 to 5.0 moles of silicon-bonded hydrogen per mole of silicon-bonded vinyl; and

(3) a platinum catalyst.

4,374,968

METHODS OF FORMING ISOCYANATE POLYMERS

Homer C. McLaughlin, Duncan, Okla., assignor to Halliburton Company, Duncan, Okla.

Division of Ser. No. 155,714, Jun. 2, 1980, which is a division of Ser. No. 17,639, Mar. 5, 1979, Pat. No. 4,264,486. This application Aug. 13, 1981, Ser. No. 292,563

Int. Cl.³ C08G 18/24

U.S. Cl. 528—54 27 Claims

1. A method of forming an isocyanate polymer using a mixture having a long gelation time greater than at least 9 minutes in the presence of some free water comprising combining an organic di- or polyisocyanate compound with an hydroxylated organic polymer and a catalyst selected from the group consisting of triethylenediamine and Group 3 and 4 metal-organic compounds.

4,374,969

ADDITION POLYMERIZABLE ISOCYANATE-POLYAMINE ANAEROBIC ADHESIVES

Kurt C. Frisch, Jr., Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of Ser. No. 215,997, Dec. 12, 1980, abandoned. This application Apr. 2, 1982, Ser. No. 364,830

Int. Cl.³ C08G 18/14

U.S. Cl. 528—69 12 Claims

1. An adhesive comprising:

(a) the reaction product of:

(1) an addition polymerizable ethylenically unsaturated isocyanate and

(2) a polyamine, wherein the reaction between the polyamine and the isocyanate has been carried out in the absence of a catalyst; and

(b) a polymerization initiator.

4,374,970

SULFUR-MODIFIED COPOLYETHER GLYCOLS, A METHOD FOR PREPARING THEM, AND POLYURETHANES PREPARED THEREFROM

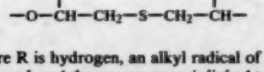
Ivan M. Robinson, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Jul. 7, 1981, Ser. No. 281,202

Int. Cl.³ C08G 18/52; C09K 3/00

U.S. Cl. 528—79 12 Claims

1. A copolyether glycol modified so that it contains in its chain 1–25%, by weight, of moieties represented by the structure



where R is hydrogen, an alkyl radical of 1–3 carbon atoms or phenyl, and the oxygen atom is linked to a hydrogen atom or a carbon atom.

11. A polyurethane which is the reaction product of

(a) the modified copolyether glycol of claim 1, 2, 3, 4 or 5;

(b) an organic polyisocyanate; and

(c) a chain extender.

4,374,971

PROCESS FOR THE PREPARATION OF THERMOPLASTIC AROMATIC POLYPHOSPHONATES WITH IMPROVED THERMAL AGEING RESISTANCE

Manfred Schmidt, New Martinsville, Va.; Dieter Freitag, and Ludwig Bottenbruch, both of Krefeld, Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Oct. 27, 1980, Ser. No. 201,254

Claims priority, application Fed. Rep. of Germany, Oct. 31, 1979, 2944093

Int. Cl.³ C08G 79/04

U.S. Cl. 528—167 **7 Claims**

1. A process for the preparation of a linear or branched-chain thermoplastic aromatic polyphosphonate having an average molecular weight number average $\overline{M}_n$ in the range of from 11,000 to 200,000, which comprises solvent-free ester interchange of 97 to 100 mol of at least one diaryl phosphonate with 90 to 99 mol of at least one aromatic dihydroxy compound to obtain linear polyphosphonate, or the interchange of said diaryl phosphonate with said aromatic dihydroxy compound in the presence of from 0.01 to 3 mol %, based on 100 mol % of the diaryl phosphonate, of a triaryl phosphate or in the presence of from 0.01 to 3 mol %, based on 100 mol % of the aromatic dihydroxy compound, of an aromatic trihydroxy or tetrahydroxy compound or a mixture thereof to obtain branched polyphosphonate, provided, that the sum of branching triaryl phosphates and branching aromatic trihydroxy or tetrahydroxy compounds is not more than a total of 3 mol %, said interchange being conducted at 90°–340° C. in an oxygen-free gas atmosphere at atmospheric pressure or reduced pressure, with removal of the volatile constituents by distillation, and in the presence of a catalytic quantity of an ester interchange catalyst which comprises at least one compound taken from the group of C_1–C_{18} tetraalkyl titanates, C_2–C_4 dialkyl tin oxides, C_2–C_4-dialkyl-C_1–C_4-dialkoxy tin compounds, C_3–C_{18} tetraalkyl zirconates and C_2–C_{18} trialkyl vanadylates, antimony or bismuth salts, C_2–C_4 dialkyl stannic acid esters, C_2–C_4 trialkyl stannic acid esters, or a mixture of at least one compound from the above groups and germanium dioxide and titanium dioxide.

4,374,972

COATING SOLUTION OF POLYETHERIMIDE OLIGOMERS

Donald A. Bolon, and Thomas B. Gorczyca, both of Schenectady, N.Y., assignors to General Electric Company, Schenectady, N.Y.

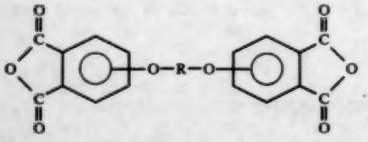
Filed Aug. 26, 1981, Ser. No. 296,390

Int. Cl.³ C08G 73/10

U.S. Cl. 528—185 **20 Claims**

1. A process for preparing a coating solution including oligomeric polyetherimides comprising:

(a) reacting at least one aromatic bis(ether anhydride of the formula:



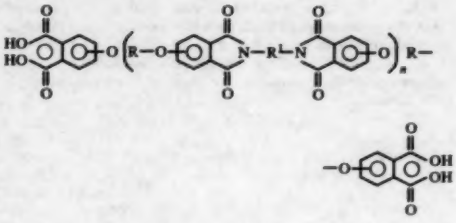
with less than a stoichometric amount of at least one diamine of the general formula:

$H_2N—R^1—NH_2$

in a suitable solvent to form oligomeric polyetheramic acids containing termanal anhydride groups

(b) heating the solution of (a) to form oligomeric polyetherimide anhydrides

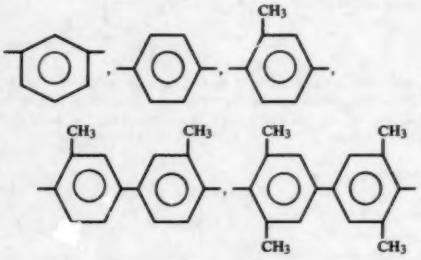
(c) hydrolizing the oligomeric anhydrides of (b) to form the free acids of the formula:

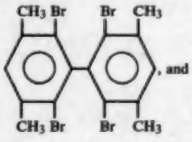


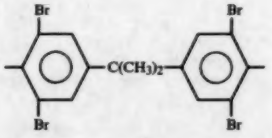
(d) adding to the oligomer solution of (c) triamines of the general formula:

$R^2(NH_2)_3$,

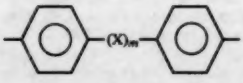
and more of the same or different diamine, where R is a member selected from the class consisting of (A) divalent organic radicals having the following formulas:



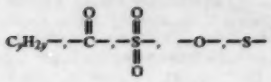




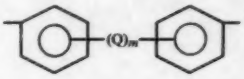
and (B) divalent organic radicals of the general formula:



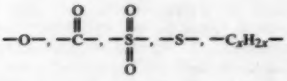
where m is 0 or 1 and X is a member selected from the class consisting of divalent radicals of the formulas,



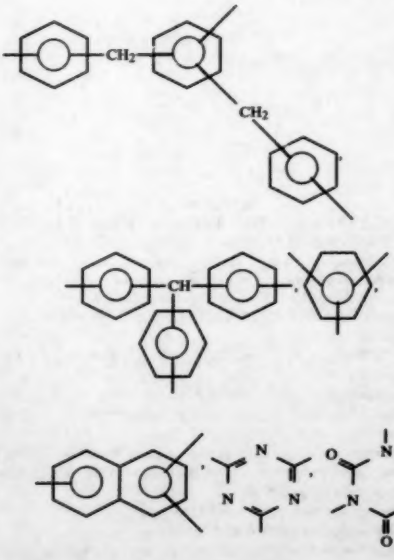
where y is an integer from 1 to 4; R^1 is a divalent organic radical selected from the class consisting of (a) aromatic hydrocarbon radicals having from 6 to about 20 carbon atoms and halogenated derivatives thereof, (b) alkylene radicals having from 2 to about 20 carbon atoms, and cycloalkylene radicals having from 3 to about 30 carbon atoms, (c) from C_2 to about C_8 alkylene terminated polydiorganosiloxane, and (d) divalent radicals of the general formula:



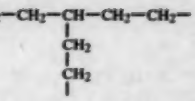
where m is as previously defined and Q is a member selected from the class consisting of



where x is an integer from 1 to 5 inclusive, R^2 is a member selected from the class consisting of (a) the following trivalent aromatic radicals



and (b) trivalent aliphatic radicals;



and n is an integer from 0 to 100.

4,374,973

POLYCARBONATES WITH SUPPRESSED AGING CHARACTERISTICS

Dusan C. Prevorsek, Morristown; Bruce T. DeBona, Madison, and Yali Kesten, Highland Park, all of N.J., assignors to Allied Corporation, Morris Township, Morris County, N.J.

Continuation of Ser. No. 180,716, Aug. 25, 1980, abandoned, which is a continuation of Ser. No. 965,119, Nov. 30, 1978, abandoned. This application Jul. 15, 1981, Ser. No. 283,330

Int. Cl.³ C08G *63/64, 63/62*

U.S. Cl. 528—191 **2 Claims**

1. Polycarbonate of improved age-resisting properties, consisting predominantly of bisphenol A moieties joined together by carbonate linkages, wherein the improvement consists in a content of essentially only copolymerized terephthalate moieties constituting 5 or 10 mol percent of the polymer, such that the polymer after exposure in the form of a 0.125 inch thick plate to temperature of 120° C. for at least 90 hours retains Izod impact resistance at room temperature, as measured by ASTM test D256 of at least 9 ft.-lbs. per inch of notch.

4,374,974

METHOD FOR MAKING POLYFORMALS AND POLYFORMAL PRODUCTS MADE THEREBY

Allan S. Hay, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Continuation of Ser. No. 889,393, Mar. 23, 1978, abandoned. This application Nov. 6, 1978, Ser. No. 958,040

Int. Cl.³ C08G *65/40*

U.S. Cl. 528—219 **22 Claims**

1. A method for making a polyformal resin having an intrinsic viscosity of greater than 0.3 in chloroform at 25° C. and capable of being compression molded to a flexible film, which comprises

(1) agitating a mixture containing as essential ingredients, methylene halide, bisphenol, alkali metal hydroxide and a member selected from the class consisting of a phase transfer catalyst and a dipolar aprotic solvent, and

(2) recovering the polyformal from the mixture of (1),

where there is utilized in the reaction mixture per mole of bisphenol, more than 1 mole of methylene halide and greater than 2 moles of alkali metal hydroxide.

4,374,975

PROCESS FOR THE PRODUCTION OF HIGH MOLECULAR WEIGHT POLYESTER

Ben Duh, Tallmadge, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Feb. 2, 1982, Ser. No. 345,172

Int. Cl.³ C08G *63/70*

U.S. Cl. 528—272 **3 Claims**

1. In a process for the continuous solid state polymerization of crystalline linear polyester prepolymer wherein the crystalline polyester is further polymerized, the improvement comprising introducing a crystalline linear polyester prepolymer having an appreciable moisture content to a single moving bed reaction zone, countercurrently contacting said polyester within the reaction zone with a heated inert gas wherein the temperature of the crystalline polyester is increased from about 170° C. to its polymerization temperature of about 200° C. to

225° C. whereby said polyester is further polymerized in its crystalline form without severe degradation of the polyester.

4,374,976

PROCESS FOR THE PRODUCTION OF POLYAMIDE SILICATE RESINOUS PRODUCTS

David H. Blount, 5450 Lea St., San Diego, Calif. 92105

Division of Ser. No. 130,015, Mar. 13, 1980, Pat. No. 4,291,154, which is a continuation-in-part of Ser. No. 908,106, May 22, 1978, Pat. No. 4,198,491, which is a continuation-in-part of Ser. No. 845,464, Oct. 25, 1977, Pat. No. 4,120,937. This application Aug. 18, 1981, Ser. No. 293,874

Int. Cl.³ C08G *69/26*

U.S. Cl. 528—339.5 **10 Claims**

1. The process for the production of polyamide silicate resinous product modified with vegetable oil by mixing and reacting the following components:

(a) halosilicon acids, 0.5 to 1 mol, produced by reacting 0.5 to 2 mols of hydrated silica compound with 1 mol of a silicon halide; the mols of halosilicon acid are based on the mols of silicon halide used;

(b) organic polyamine, 1 to 2 mols;

(c) polycarboxylic acid, polycarboxylic acid anhydride or mixtures thereof, in a total amount of 1 to 2 mols;

(d) vegetable oil, in an amount wherein a portion of the polycarboxylic acid or polycarboxylic acid anhydride is replaced with a vegetable oil.

4,374,977

POLY-P-PHENYLENE-TEREPHTHALAMIDE FIBERS EXCELLENT IN FATIGUE RESISTANCE AND PROCESS FOR PREPARATION THEREOF

Takashi Fujiwara, Miyazaki; Shuji Kajita, Osaka; Tetsuo Matsushita, Miyazaki, and Seiichi Manabe, Osaka, all of Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Japan

Filed Mar. 11, 1980, Ser. No. 129,403

Claims priority, application Japan, Mar. 13, 1979, 54-29116

Int. Cl.³ C08G *69/46*

U.S. Cl. 528—348 **9 Claims**

1. A fiber excellent in fatigue resistance, consisting essentially of poly-p-phenylene-terephthalamide, wherein the tangential refractive index (TRIv) of the fiber by polarized light vibrating in the direction perpendicular to the fiber axis is in the range of from 0 to 0.07, the tangential refractive index (TRIp) of the fiber by polarized light vibrating in the direction parallel to the fiber axis is in the range of from −0.06 to −0.005, the central refractive index (Nvo) of the fiber by polarized light vibrating in the direction perpendicular to the fiber axis and the X-ray diffraction intensity ratio (RIX) are in the range satisfying the conditions of the formulae (1) through (4):

$$Nvo \geqq -0.08(RIX) + 1.672 \quad (1)$$

$$Nvo \leqq 1.700 \quad (2)$$

$$RIX \geqq 0.85 \quad (3)$$

$$RIX \leqq 1.20 \quad (4)$$

and the apparent crystallite size (ACS in A) of the fiber and the orientation angle (OA in degrees) of the fiber are in the range circumscribed by the four lines (a), (b), (c), and (d) defined by the formulae (5) through (8) as illustrated in FIG. 1:

$$OA \geqq 0.04(ACS) + 16 \quad (5)$$

$$OA \geqq 2(ACS) - 160 \quad (6)$$

$$OA \leqq 0.04(ACS) + 26 \quad (7)$$

$$OA \leqq 2(ACS) - 82 \quad (8).$$

4,374,978

HIGH YOUNG'S MODULUS POLY-P-PHENYLENE TEREPHTHALAMIDE FIBER

Takashi Fujiwara, Miyazaki; Shuji Kajita, Osaka; Tetsuo Matsushita, Miyazaki, and Seiichi Manabe, Osaka, all of Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Japan

Filed Mar. 11, 1980, Ser. No. 129,404

Claims priority, application Japan, Mar. 13, 1979, 54-29115

Int. Cl.³ C08G *69/46*

U.S. Cl. 528—348 **9 Claims**

1. A high Young's modulus fiber consisting essentially of poly-p-phenylene-terephthalamide wherein the tangential refractive index (TRIv) of the fiber by polarized light vibrating in the direction perpendicular to the fiber axis is in the range of from 0.06 to 0.10, the tangential refractive index (TRIp) of the fiber by polarized light vibrating in the direction parallel to the fiber axis is in the range of from −0.020 to +0.020, the central refractive index (Nvo) of the fiber by polarized light vibrating in the direction perpendicular to the fiber axis and the X-ray diffraction intensity ratio (RIX) are in the range satisfying the conditions of the formulae (1) through (4):

$$Nvo \geqq -0.08(RIX) + 1.670 \quad (1)$$

$$Nvo \leqq 1.640 \quad (2)$$

$$RIX \geqq 0.85 \quad (3)$$

$$RIX \leqq 1.10 \quad (4),$$

and the apparent crystallite size (ACS in A) of the fiber and the orientation angle (OA in degrees) of the fiber are in the range circumscribed by the four lines (a), (b), (c), and (d) defined by the formulae (5) through (8) as illustrated in FIG. 1:

$$OA \geqq 0.10\ (ACS) + 4.8 \quad (5)$$

$$OA \geqq 0.40\ (ACS) - 19.8 \quad (6)$$

$$OA \leqq 0.05\ (ACS) + 13.3 \quad (7)$$

$$OA \leqq 3\ (ACS) - 146 \quad (8).$$

4,374,979

REGIOSPECIFIC SYNTHESIS OF ANTHRACYCLINONE COMPOUNDS SUCH AS DAUNOMYCINONE

Lester A. Mitscher, Lawrence, Kans., assignor to The University of Kansas Endowment Association, Lawrence, Kans.

Filed Apr. 27, 1981, Ser. No. 258,193

Int. Cl.³ C07H *15/24*; C07C *49/72, 49/74, 49/84*

U.S. Cl. 536—6.4 **10 Claims**

1. A process for synthesizing asymmetric anthracyclinones which comprises:

(a) brominating a 5,8-dimethoxy-α-tetralone to yield a 7-bromo-5,8 dimethoxy-α-tetralone as substantially the only isomer,

(b) transposing the 1-keto group of said 7-bromo-5,8-dimethoxy-α-tetralone to the 2-position to yield the corresponding β-tetralone;

(c) protecting said transposed keto group,

(d) lithiating said protected β-tetralone,

(e) reacting said lithiated compound with a phthalate ester, and

(f) cyclizing said conjugate to yield an anthracyclinone.

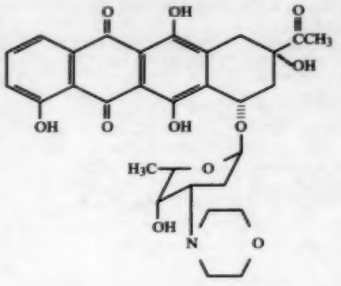
4,374,980

3'-DEAMINO-3'-MORPHOLINO CARMINOMYCIN

Hamao Umezawa; Tomio Takeuchi; Kuniaki Tatsuta, all of Tokyo, and Yoshikazu Takahashi, Tama, all of Japan, assignors to Zaidan Hojin Biseibutsu Kagaku Kenkyu Kai, Tokyo, Japan

Filed Mar. 15, 1982, Ser. No. 357,970
Claims priority, application Japan, Mar. 27, 1981, 56-44159
Int. Cl.³ A61K 31/71; C07H 15/24
U.S. Cl. 536—6.4 2 Claims

1. The anthracycline glycoside 3'-deamino-3'-morpholino-carminomycin of the formula



Ia

or a pharmaceutically acceptable acid addition salt thereof.

4,374,981

ULTRAFILTRATION OF FERMENTATION BROTH CONTAINING NUCLEOSIDES TO SEPARATE INOSINE AND GUANOSINE FROM THE BROTH

Masahiko Tsuda, Kobe; Kazuhiko Ohta, Ikeda, and Kiyoshi Nara, Kyoto, all of Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

Filed Nov. 20, 1981, Ser. No. 323,705
Claims priority, application Japan, Nov. 27, 1980, 55-167667
Int. Cl.³ C07H 17/00, 19/06
U.S. Cl. 536—24 2 Claims

1. A process for separating inosine, guanosine or their mixture from a fermentation broth, which comprises heat-treating said fermentation broth at 90° to 110° C., followed by subjecting thus-heated fermentation broth to ultrafiltration.

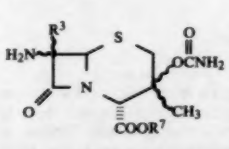
4,374,982

CEPHAM COMPOUNDS

Robert L. Cundall, State College, Pa., and Derek Walker, Jamesville, N.Y., assignors to Bristol-Myers Company, New York, N.Y.

Division of Ser. No. 92,248, Nov. 7, 1979, Pat. No. 4,310,459, which is a division of Ser. No. 893,092, Apr. 3, 1978, Pat. No. 4,322,347. This application Aug. 3, 1981, Ser. No. 290,744
Int. Cl.³ C07D 501/04; A61K 31/545
U.S. Cl. 544—16 3 Claims

1. A compound of the formula



in which R^3 is hydrogen, (lower)alkoxy or (lower)alkylthio, and $COOR^7$ is carboxyl or a conventionally protected carboxyl group.

4,374,983

INTERMEDIATES FOR USE IN THE PREPARATION OF CEPHALOSPORIN ANTIBIOTICS

John M. Robinson, Ruislip, England, assignor to Glaxo Group Limited, England

Continuation of Ser. No. 152,85 3, May 23, 1980, abandoned. This application Mar. 3, 1981, Ser. No. 240,104
Claims priority, application United Kingdom, May 25, 1979, 7918428
Int. Cl.³ C07D 501/18; A61K 31/545
U.S. Cl. 544—24 1 Claim

1. (6R,7R)-7-amino-3-(1-pyridiniummethyl)ceph-3-em-4-carboxylic acid monoperchlorate.

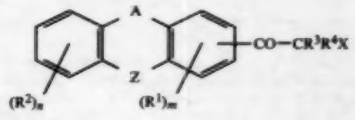
4,374,984

AROMATIC-ALIPHATIC KETONES USEFUL AS PHOTOINITIATORS

Jürgen Eichler, Weiterstadt; Claus Herz, Heidelberg; Karl-Heinz Neisius, and Gregor Wehner, both of Darmstadt, all of Fed. Rep. of Germany, assignors to Merck Patent Gesellschaft mit Beschrankter Haftung, Darmstadt, Fed. Rep. of Germany

Filed Mar. 4, 1981, Ser. No. 240,439
Claims priority, application Fed. Rep. of Germany, Mar. 5, 1980, 3008411
Int. Cl.³ C07D 219/06, 413/06, 413/14
U.S. Cl. 544—80 3 Claims

1. A compound of the formula



wherein

A is —CO— or —CO—CO—;

X is $—OR^5$; with R^3, is —O—CH(R^{10})—,

Z is $—NR^{12}$—;

m is 0 or an integer of 1 to 3;

n is 0 or an integer of 1 to 3;

R^1 is alkyl of 1–12 C atoms, cycloalkyl of 5–6 C atoms, aryl of 6–14 C atoms, aralkyl of 7–9 C atoms, —OH, —OAlk, —OAr, —SAlk, $—SCH_2CH_2OH$, —SAr, $—SO_2Alk$, $—SO_2$phenyl, $—SO_2NH_2$, $—SO_2NHAlk$, $—SO_2N(Alk)_2$, —COOAlk, $—NH_2$, —NHAlk, $—N(Alk)_2$, —NHCOphenyl, —CN or halogen;

R^2 can be any of the groups defined for R^1 or another $—CO—CR^3R^4X$ group;

R^3 is H, alkyl of 1–8 C atoms, or alkyl of 1–8 C atoms substituted by —OH, —OAlk, acyloxy of 2–8 C atoms, $—NR^8R^9$, —COOAlk or —CN, or is alkenyl of 3–5 C atoms

R^4 can be any of the groups defined for R^3 or $—CH_2CH_2R^{13}$;

R^5 is H, alkyl of 1–12 C atoms, or alkyl of 1–8 C atoms substituted by —Cl, —Br, —OH, —OAlk, —SAlk, acyloxy of 2–8 C atoms, —COOAlk, —CONHAlk, $—CON(Alk)_2$ or —CN, or is alkenyl of 3–5 C atoms, or cyclohexyl;

R^8 is alkyl of 1–12 C atoms, or alkyl or 2–4 C atoms substituted by —OH, —OAlk or —CN, or is alkenyl of 3–5 C atoms or, cyclohexyl;

R^9 is alkyl of 1–12 C atoms, or alkyl of 2–4 C atoms substituted by —OH, —OAlk or —CN, or is alkenyl of 3–5 C atoms or, cyclohexyl, or, together with R^8, is alkylene of 4–5 C atoms or C_{4-5}-alkylene interrupted by —O— or $—NR^{14}$—, or, together with R^4, is alkylene of 1–9 C atoms, or oxaor aza-alkylene of 2–3 C atoms;

R^{12} is H, alkyl of 1–4 C atoms or cycloalkyl of 5–6 C atoms;

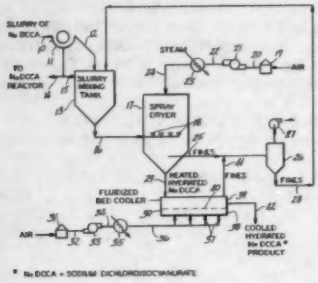
R^{13} is $—CONH_2$, —CONHAlk, $—CON(Alk)_2$,

R^{14} is alkyl of 1–4 C atoms,
Alk is alkyl of 1–4 C atoms; and
Ar is C_{6-14} aryl or aryl substituted by alkyl groups and having a total of 6–14 C atoms;
wherein aryl stands for hydrocarbon aryl groups and acyl groups are derived from hydrocarbon carboxylic acids.

4,374,985
HYDRATED ALKALI METAL DICHLOROISOCYANURATE AND ITS PRODUCTION

David F. Doonan, Lake Charles, and Noel N. Coe, Westlake, both of La., assignors to Olin Corporation, New Haven, Conn.

Filed Apr. 5, 1979, Ser. No. 27,349
Int. Cl.³ C07D 251/36
U.S. Cl. 544—190 26 Claims



* No. DCCA = SODIUM DICHLOROISOCYANURATE

1. A process for preparing dry cooled porous particles of hydrated alkali metal dichloroisocyanurate which comprises:

a. spraying droplets of an aqueous slurry of solid alkali metal dichloroisocyanurate into an evaporation zone fed with a moving stream of gas heated to a temperature sufficiently high to evaporate free water from the droplets and form from said droplets heated porous solid spherical particles of hydrated alkali metal dichloroisocyanurate containing from about 7 to about 14 percent by weight of water of hydration,

b. fluidizing said heated particles in a cooling fluidizing gas until said particles are cooled to a temperature below about 50° C., and

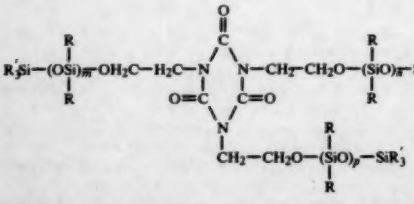
c. recovering the resulting dry cooled porous solid spherical particles of hydrated alkali metal dichloroisocyanurate produced thereby.

4,374,986
SELECTED SILOXANE ADDUCTS OF TRIS(2-HYDROXYETHYL)ISOCYANURATE

Jacqueline M. Renner, New Haven; Robert N. Scott, Wallingford, and David F. Gavin, Cheshire, all of Conn., assignors to Olin Corporation, New Haven, Conn.

Filed Aug. 3, 1981, Ser. No. 289,667
Int. Cl.³ C07D 251/34
U.S. Cl. 544—221 6 Claims

1. A compound of the formula:



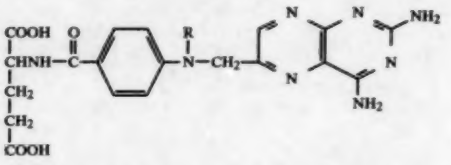
wherein each R and R′ is individually selected from lower alkyl groups having 1 to 4 carbon atoms and lower alkoxy groups having 1 to 4 carbon atoms; and the sum of m, n and p is from 0 to about 20; with the proviso that R′ is a lower alkoxy group when the sum of m, n, and p is 0.

4,374,987
PROCESS FOR THE PREPARATION OF HIGH PURITY METHOTREXATE AND DERIVATIVES THEREOF

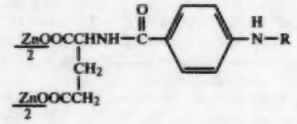
Balwant Singh, Stamford, and Frederic C. Schaefer, Darien, both of Conn., assignors to American Cyanamid Company, Stamford, Conn.

Filed Aug. 14, 1980, Ser. No. 178,070
Int. Cl.³ C07D 475/08
U.S. Cl. 544—260 2 Claims

1. A process for preparing a compound of the formula



wherein R is hydrogen or C_1 to C_4 alkyl which comprises simultaneously reacting 2,4,5,6-tetraaminopyrimidine sulfate and 1,1,3-tribromoacetone with a salt of the formula



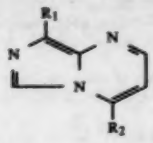
in water at a temperature of about 30° to about 60° C. and a pH of about 1.5 to about 3.5; adjusting the pH of the reaction mixture with ammonium hydroxide to a pH of from about 9 to about 10; lowering the pH of the filtrate to about pH 6.0 with hydrochloric acid to precipitate the zinc salt; filtering and water-washing the resultant precipitate; reslurrying said precipitate in water and adjusting the pH of the slurry to about pH 1.5 with hydrochloric acid, filtering and water-washing the resultant precipitate; dispersing the filtered and water-washed precipitate in water and adjusting the pH of the solution of pH of about 10 with sodium hydroxide; acidifying the solution to a pH of about 1.5 with hydrochloric acid; water-washing the resultant precipitate; redissolving said precipitate in water and adjusting the pH of the solution to about pH 10 with sodium hydroxide; diluting the solution with acetone and dissolving the precipitate in water; and acidifying to a pH of about pH 4.0 with sulfuric acid.

4,374,988
4-HETEROARYLIMIDAZO-[1,5-A]PYRIMIDINES

John P. Dusza, and Jay D. Albright, both of Nanuet, N.Y., assignors to American Cyanamid Company, Stamford, Conn.

Filed Nov. 5, 1981, Ser. No. 318,611
Int. Cl.³ C07D 521/00; A61K 31/505
U.S. Cl. 544—281 16 Claims

1. Compounds having the formula



wherein R_1 is selected from the class consisting essentially of hydrogen, chloro, bromo, cyano (—CN), carbamoyl (—CO—NH_2), carboxyl (—COOH), and lower alkoxycarbonyl (—CO—O—R_3, where R_3 is a lower alkyl radical having 1–4 carbon atoms), and wherein R_2 is a monovalent radical selected from the class consisting essentially of furyl, thienyl, 3-pyridyl and 3-pyridyl-N-oxide, either of said pyridyl radicals optionally being substituted with an alkyl radical having from 1 to 4 carbon atoms.

4,374,989

PROCESS FOR THE MANUFACTURE OF DIANTHRAQUINONYL-N,N'-DIHYDROAZINE

Athanassios Tzikas, Pratteln, Switzerland, assignor to Ciba-Geigy AG, Basel, Switzerland

Continuation of Ser. No. 149,125, May 8, 1980, abandoned, which is a continuation of Ser. No. 33,406, Apr. 6, 1979, abandoned. This application Aug. 18, 1981, Ser. No. 293,985

Claims priority, application Switzerland, May 8, 1978, 4960/78

Int. Cl.³ C09B 5/48

U.S. Cl. 544—339 **11 Claims**

1. A one-batch process for the manufacture of dianthraquinonyl-N,N'-dihydroazine, which comprises reacting 1-nitroanthraquinone in a mixture of (a) water or a mixture of water and at least one alcohol and (b) an alkali metal hydroxide or a mixture of alkali metal hydroxides at a temperature of between room temperature and the boiling temperature of the reaction mixture with hydrazine, hydrazine hydrate, methyl hydrazine, ethyl hydrazine, phenyl hydrazine, hydrazinium chloride, hydrazinium dichloride, hydrazinium sulfate, hydrazinium bromide, benzenesulfonyl hydrazine, hydroxylamine, hydroxylamine hydrochloride, hydroxylammonium sulfate or hydroxylamine sulfonic acid, subsequently removing any alcoholic constituents present from the reaction mixture, adding to the reaction mixture dimethyl sulfoxide or dimethyl sulfoxide and a further amount of alkali metal hydroxide, and bringing the reaction to completion at a temperature between 80° and 140° C.

4,374,990

CYCLIC DIAMINE DERIVATIVES

Rolf-Ortwin Weber, Wiesbaden; Alfons Söder, Frankfurt am Main, and Istvan Boksay, Kiedrich, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt, Fed. Rep. of Germany

Continuation of Ser. No. 307,406, Nov. 17, 1972, abandoned. This application Oct. 26, 1979, Ser. No. 88,338

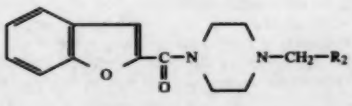
Claims priority, application Fed. Rep. of Germany, Nov. 19, 1971, 2157424; Aug. 18, 1972, 2240665

The portion of the term of this patent subsequent to Sep. 19, 1995, has been disclaimed.

Int. Cl.³ C07D 405/02; A61K 31/495

U.S. Cl. 544—376 **14 Claims**

1. A compound of the formula:



wherein R_2 is phenyl or phenyl substituted with halogen, trifluoromethyl or alkyl of 1 to 6 carbon atoms.

4,374,991

2,6-DIMETHYLPIPERIDINYL-N-CARBOBUTOXYMETHYL UREA

Joel R. Smolanoff, Chalfont, Pa., assignor to Rohm and Haas Company, Philadelphia, Pa.

Division of Ser. No. 29,491, Apr. 12, 1979, abandoned, which is a continuation-in-part of Ser. No. 839,159, Oct. 3, 1977, abandoned, which is a continuation-in-part of Ser. No. 751,932, Dec. 17, 1976, abandoned. This application Dec. 29, 1981, Ser. No. 221,091

Int. Cl.³ C07D 211/30

U.S. Cl. 546—245 **1 Claim**

1. A compound named 2,6-dimethylpiperidinyl-N-carbobutoxymethyl urea.

4,374,992

CERTAIN ARYLALIPHATICTHIO-PYRIDINE TYPE COMPOUNDS

Roger Crossley, Reading, England, assignor to John Wyeth and Brother Limited, Maidenhead, England

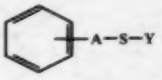
Division of Ser. No. 170,366, Jul. 21, 1980, Pat. No. 4,304,701, which is a continuation-in-part of Ser. No. 98,420, Nov. 29, 1979, abandoned. This application Jul. 27, 1981, Ser. No. 286,830

Claims priority, application United Kingdom, Nov. 30, 1978, 46722/78

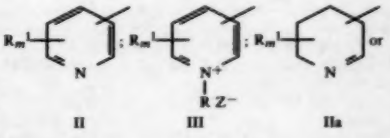
Int. Cl.³ C07D 13/30, 213/48, 213/51

U.S. Cl. 546—298 **4 Claims**

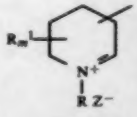
1. A compound of formula:



wherein A represents saturated or unsaturated alkylene radical having from 1 to 6 carbon atoms, which may be substituted by lower alkyl of 1 to 6 carbon atoms, oxo or hydroxy, S is sulphur and Y is a radical of formula:



II III IIa



IIIa

wherein R^1 is hydroxyloweralkyl, loweralkoxyloweralkyl, formyl or acetal, $CH(OR^4)_2$ where R^4 is lower alkyl or two R^4 radicals are joined to form a lower alkylene chain, m is 1 or 2, R is lower alkyl of 1 to 4 carbon atoms or aralkyl of 7 to 12 carbon atoms, and Z^- is a pharmaceutically acceptable anion, or a pharmaceutically acceptable acid addition salt of a compound containing a radical of formula IV or IIa.

4,374,993

PROCESS FOR THE PREPARATION OF THE SULFATE SALT OF 2-AMINO-5-ALKYLTHIO-1,3,4-THIADIAZOLES

Kim S. Chamberlin, Kingsport, Tenn., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Jun. 8, 1981, Ser. No. 271,323
Int. Cl.³ C07D 285/12
U.S. Cl. 548—141 8 Claims

1. Process for the preparation of a sulfate salt of a 2-amino-5-alkylthio-1,3,4-thiadiazole, which comprises adding a dialkylsulfate to a mixture of 2,5-dithiobiurea and water.

4,374,994

PROCESS FOR PREPARATION OF 5-MERCAPTOTETRAZOLYL-1-ACETIC ACID

Gary M. F. Lim, and Masaki Endo, both of Candiac, Canada, assignors to Bristol-Myers Company, New York, N.Y.

Filed Jul. 5, 1979, Ser. No. 54,743
Int. Cl.³ C07D 257/04
U.S. Cl. 548—251 1 Claim

1. The process for the production of an alkaline solution of 5-mercaptotetrazolyl-1-acetic acid which consists of the consecutive steps of

(a) heating at a temperature between 50° C. and 100° C. a solution in chloroform or carbon tetrachloride of tetrazolyl-1-acetic acid with enough added acetic acid to bring the tetrazolyl-1-acetic acid into solution and twice as many moles of bromine as of tetrazoiyl-1-acetic acid to produce 5-bromotetrazolyl-1-acetic acid,

(b) precipitating said 5-bromotetrazolyl-1-acetic acid as a solid by addition of a nonsolvent therefor which is a liquid alkane or a mixture of liquid alkanes,

(c) recovering said solid 5-bromotetrazolyl-1-acetic acid and heating it to reflux in a lower aliphatic alcohol in the presence of an amount of thiourea which is equimolar to the 5-bromotetrazolyl-1-acetic acid and then

(d) mixing with the resulting mixture dilute, aqueous sodium hydroxide or potassium hydroxide with stirring at room temperature to produce an alkaline solutior of 5-mercaptotetrazolyl-1-acetic acid.

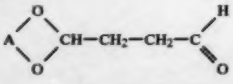
4,374,995

PROCESS FOR THE PRODUCTION OF TRYPTOPHANE-HYDANTOIN

Axel Kleemann, and Marc Samson, both of Hanau, Fed. Rep. of Germany, assignors to Degussa Aktiengesellschaft, Frankfurt, Fed. Rep. of Germany

Filed Nov. 10, 1981, Ser. No. 320,128
Claims priority, application Fed. Rep. of Germany, Nov. 15, 1980, 3043259
Int. Cl.³ C07D 233/30
U.S. Cl. 548—309 10 Claims

1. A process of preparing tryptophane hydantoin comprising (a) reacting a compound of formula



(I)

where A is an alkylene group having 2 or 3 carbon atoms or such an alkylene group substituted by 1 to 2 methyl groups in aqueous or aqueous-alcoholic solution with hydrogen cyanide or a cyanide ion supplying compound, ammonia or an ammonium ion supplying compound and carbon dioxide or a carbonate ion supplying compound and

(b) reacting the reaction mixture obtained with phenyl hydrazine at a pH between 0.1 and 4.

4,374,996

DISULFIDE INTERMEDIATE FOR CIMETIDINE

Clifford S. Labaw, Philadelphia, and George R. Wellman, Wayne, both of Pa., assignors to SK & F Lab Co., Carolina, P.R.

Filed Jun. 3, 1981, Ser. No. 270,076
Int. Cl.³ C07D 233/64
U.S. Cl. 548—342 1 Claim

1. N-cyano-N'-methyl-N''-[2-(5-methyl-4-imidazolylmethyldithio)ethyl]guanidine.

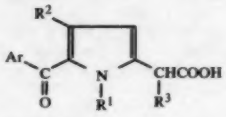
4,374,997

PROCESS FOR THE PREPARATION OF ZOMEPIRAC AND RELATED COMPOUNDS

James B. Doherty, New Milford, and Debra L. Allison, Scotch Plains, both of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

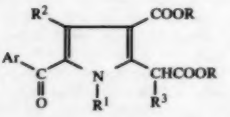
Filed Jun. 4, 1981, Ser. No. 270,317
Int. Cl.³ C07D 207/337, 207/31
U.S. Cl. 548—539 9 Claims

1. A process for preparing Zomepirac and its analogs of the structural formula:



(I)

wherein Ar is phenyl or halophenyl; R^1 and R^3 independently are H or C_{1-6}alkyl and R^2 is H, C_{1-6}alkyl or halo comprising decarboxylating a diacid derivative of the structural formula:



(II)

wherein R^1, R^2 and R^3 are as previously defined; and R is H, t-butyl, or benzhydryl in an acid or in an inert solvent containing the acid.

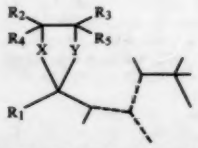
4,374,998

ALIPHATIC BRANCHED OLEFIN DIOXOLANES

Richard M. Boden, Monmouth Beach, N.J., assignor to International Flavors & Fragrances Inc., New York, N.Y.

Continuation-in-part of Ser. No. 212,993, Dec. 4, 1980, Pat. No. 4,315,952. This application Dec. 10, 1981, Ser. No. 329,216
Int. Cl.³ C07D 317/12
U.S. Cl. 549—430 6 Claims

1. A dioxolane, oxathiolane or dithiolane compound defined according to the structure:



wherein R_1 represents C_1–C_4 lower alkyl; R_2, R_3, R_4 and R_5 represent hydrogen or C_1–C_3 lower alkyl; X and Y are the same and each represents oxygen and wherein one of the dashed lines represents a carbon-carbon double bond and each of the other of the dashed lines represent carbon-carbon single bonds.

4,374,999

INTERNAL HYDROFORMYLATION OF ACROLEIN ACETALS

Philip E. Garrou, Holliston, Mass., assignor to The Dow Chemical Company, Midland, Mich.

Filed Jan. 2, 1981, Ser. No. 222,184
Int. Cl.³ C07D 317/10, 319/04; C07C 43/00
U.S. Cl. 549—453 6 Claims

1. A one-step process for selectively hydroformylating an acetal of acrolein to a corresponding methylol acetal comprising contacting an acetal of acrolein with a gaseous mixture of carbon monoxide and hydrogen in the presence of a catalytic amount of a rhodium-cobalt bimetallic cluster loaded on an amine resin at a pressure of at least 500 p.s.i.a. and at a temperature in the range from about 50° to about 175° C., so as to effect hydroformylation predominantly on the acetal's unsaturated carbon atom adjacent to the carbon atom bearing two ether groups.

4,375,000

PROCESS FOR THE PREPARATION OF AN ARYL MONO-, DI-, AND/OR POLYURETHANE

Franz Merger, Frankenthal; Friedrich Towae, Ludwigshafen, and Wolfgang Harder, Weinheim, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Filed Mar. 31, 1980, Ser. No. 135,242
Claims priority, application Fed. Rep. of Germany, Apr. 30, 1979, 2917568; Oct. 20, 1979, 2942511
Int. Cl.³ C07C 125/07, 125/077, 125/063
U.S. Cl. 560—25 12 Claims

1. A process for the preparation of an aryl mono-, di-, and/or polyurethane comprising the steps of

A. reacting a primary aromatic mono-, di- and/or polyamine with a carbamate of the formula H_2N-COOR in which R represents an unsubstituted or substituted aliphatic, cycloaliphatic or aromatic-aliphatic radical in the presence of an alcohol at temperatures greater than 160° C., and

B. separating the ammonia and other by-products from the aryl mono-, di-, and/or polyurethane.

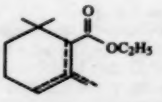
4,375,001

ESTERS OF 2,3,6,6-TETRAMETHYL-CYCLOHEXENYL CARBOXYLIC ACIDS AND ODORANT MIXTURES THEREOF

Givaudan Corporation, 02, Clifton, N.J., and Hanspeter Schenk, Zumikon, Switzerland

Filed Jun. 4, 1980, Ser. No. 156,432
Claims priority, application Switzerland, Jun. 13, 1979, 5527/79; Apr. 24, 1980, 3163/80
Int. Cl.³ C07C 69/75
U.S. Cl. 560—128 6 Claims

1. An ester of the formula



wherein one of the three broken lines represents an additional bond.

4,375,002

AMINES VIA THE AMINATION OF OLEFINS

John O. H. Peterson, North Windham, Me., and Howard S. Fales, West Reading, Conn., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

Continuation-in-part of Ser. No. 148,352, May 9, 1980, Pat. No. 4,307,250. This application Apr. 8, 1981, Ser. No. 248,403
The portion of the term of this patent subsequent to Dec. 22, 1998, has been disclaimed.
Int. Cl.³ C07C 91/02
U.S. Cl. 564—445 20 Claims

1. In a vapor phase catalytic amination process for the production of amines from a reaction mixture comprising an olefin having from 2–8 carbon atoms and a nitrogen compound selected from the group consisting of ammonia and primary and secondary amines at a temperature and pressure sufficient for effecting formation of said amine the improvement which comprises:

(a) employing a temperature and pressure sufficient to form said amine, but insufficient for forming substantial polymerization of the olefin; and

(b) employing as said catalyst a crystalline alumino silicate.

4,375,003

METHOD FOR THE HYDROGENATION OF NITRILES TO PRIMARY AMINES

Ronald J. Allain, and Gerald D. Smith, both of Richmond, Tex., assignors to Nalco Chemical Company, Oak Brook, Ill.

Continuation of Ser. No. 924,327, Jul. 13, 1978, abandoned, which is a continuation of Ser. No. 841,501, Oct. 11, 1977, abandoned, which is a continuation of Ser. No. 743,731, Nov. 22, 1976, abandoned. This application Jan. 15, 1979, Ser. No. 3,138
Int. Cl.³ C07C 85/12
U.S. Cl. 564—492 17 Claims

1. In an improved process for catalytically hydrogenating aliphatic nitriles to aliphatic primary amines by contacting the aliphatic nitrile with hydrogen in the presence of a Raney cobalt catalyst, the improvement which comprises:

A. Contacting an aqueous medium containing dissolved therein an alkali metal hydroxide with a fixed group of cobalt-aluminum alloy particles, the alkali metal hydroxide being added incrementally to the aqueous medium during the contacting over a time interval,

(1) said aqueous medium containing from about 0 to 50 weight percent dissolved alkali,

(2) said group having an average particle diameter in the range of from about 0.002 to 0.5 inch,

(3) said cobalt-aluminum alloy having an initial cobalt to aluminum weight ratio of from about 30:70 to 70:30,

(4) said contacting being accomplished over a total interval of 2–30 hours,

(5) the addition rate of alkali metal hydroxide solution being so added to said medium during said contacting being from about 0.01 to 7 moles alkali metal hydroxide per mole of aluminum initially in said alloy particles per hour,

(6) the total quantity of alkali metal hydroxide so added being in the range of from about 0.5 to 20 moles of alkali metal hydroxide per mole of aluminum initially present in said alloy,

(7) the resulting aqueous medium produced during said contacting being maintained at a temperature at or below about 50° C.;

B. Washing the so treated group of particles to separate therefrom remaining unreacted alkali metal until the resulting wash water has a pH of less than about 7.5; and then,

C. Contacting the so washed group of particles with an aliphatic nitrile containing 3–40 carbon atoms and hydrogen gas at a pressure of from 50–1,000 psi at a temperature of from 50° to 170° C. whereby the aliphatic nitrile is hydrogenated to the corresponding aliphatic primary amine.

4,375,004

NORBORNYL ALKYL ETHERS

Mark A. Sprecker, Sea Bright, N.J., assignor to International Flavors & Fragrances Inc., New York, N.Y.

Continuation-in-part of Ser. No. 200,012, Oct. 23, 1980, Pat. No. 4,311,861. This application Oct. 22, 1981, Ser. No. 313,722
The portion of the term of this patent subsequent to Jan. 19, 1999, has been disclaimed.
Int. Cl.³ C07C 43/18
U.S. Cl. 568—665 3 Claims

1. A product comprising a composition of matter produced according to a process of intimately admixing ethylidene norbornene compound defined according to the structure:

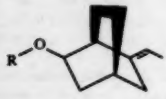
with an alcohol defined according to the structures:

R—OH

in the presence of a mineral acid catalyst or a Lewis acid catalyst and in the presence of an inert solvent or in the present of an excess of the alcohol reactant, the reaction temperature varying from about 25° C. up to 120° C., the mole ratio of catalyst to ethylidene norbornene having the structure:

varying from about 1:99 up to about 1:10; the mole ratio of ethylidene norbornene reaction to ROH alcohol reactant varying from about 1:1 up to about 1:2, the moiety R being isopropyl.

2. A composition of matter which is a mixture of two compounds having the structures:



and

wherein R represents isopropyl.

3. A compound having the structures:

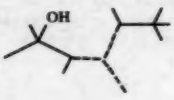
4,375,005

BRANCHED CHAIN OLEFINIC ALCOHOLS, THIOLS, ESTERS AND ETHERS, ORGANOLEPTIC USES THEREOF, PROCESSES FOR PREPARING SAME AND INTERMEDIATES THEREFOR

Richard M. Boden, Monmouth Beach, N.J., assignor to International Flavors & Fragrances Inc., New York, N.Y.

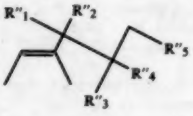
Filed Nov. 19, 1981, Ser. No. 322,734
Int. Cl.³ C07C 29/40
U.S. Cl. 568—878 1 Claim

1. A composition of matter comprising a major proportion of compounds characterized according to the structure:



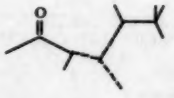
wherein in each of the molecules of the mixture one of the dashed lines represents a carbon-carbon double bond and each of the other of the dashed lines represents a carbon-carbon single bond, said compoaition of matter produced according to the process comprising the steps of:

(a) dimerization of isoamylene in the presence of an acid catalyst to form a mixture of diisoamylene compounds defined according to the structure:



wherein R_1'', R_2'', R_3'', R_4'' and R_5'' represents hydrogen or methyl with three of R_1'', R_2'', R_3'', R_4'' and R_5'' representing methyl and the other two of R_1'', R_2'', R_3'', R_4'' and R_5'' representing hydrogen;

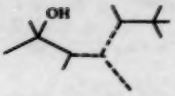
(b) reacting the resulting diisoamylene mixture with a compound selected from the group consisting of acetyl chloride and acetic anhydride in the presence of an acid catalyst to form a mixture containing a major proportion of compounds defined according to the structure:



wherein in each of the molecules, one of the dashed lines is a carbon-carbon double bond and each of the other of the dashed lines represent carbon-carbon single bonds;

(c) reacting the resulting compound with methyl lithium at a temperature in the range of from 25° C. up to 50° C. in the presence of an inert solvent thereby forming a mixture of organolithium salts; and

(d) reacting the resulting mixture of organolithium salts with dilute aqueous mineral acid at a temperature of from 0° C. up to about 50° C. thereby forming a mixture of compounds containing a major proportion of compounds having the structure:



wherein in each of the molecules, one of the dashed lines represents a carbon-carbon double bond and each of the other of the dashed lines represent carbon-carbon single bonds; and

(e) distilling the resulting mixture.

4,375,006

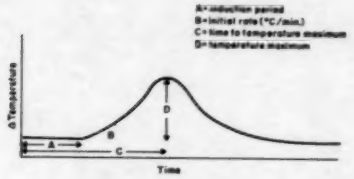
STABILIZATION OF DIBROMOSTYRENE

Philip F. Jackisch, Royal Oak, Mich., assignor to Ethyl Corporation, Richmond, Va.

Division of Ser. No. 130,118, Mar. 13, 1980, abandoned. This application Aug. 14, 1961, Ser. No. 293,003

Int. Cl.³ C07C *25/02*

U.S. Cl. 570—105 **6 Claims**



Representative Differential Thermal Analysis Curve of Polymerization

1. Dibromostyrene stabilized with a polymerization inhibiting quantity of a lower alkyl ester of gallic acid and a compound selected from the group consisting of phenothiazine, alkyl-substituted phenothiazines, and 4-tert-butylcatechol.

4,375,007

SILICON SOLAR CELLS WITH ALUMINUM-MAGNESIUM ALLOY LOW RESISTANCE CONTACTS

Sanford M. Marcus, Wilmington, Del., assignor to E. I. Du Pont de Nemours & Co., Wilmington, Del.

Division of Ser. No. 210,553, Nov. 26, 1980, Pat. No. 4,347,262.
This application Nov. 12, 1981, Ser. No. 320,590
Int. Cl.³ H01L 31/06
U.S. Cl. 136—256 4 Claims

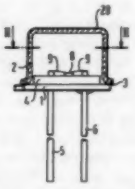
1. A silicon solar cell coated with Si_3N_4 having a P-type and an N-type region and a P-N junction, the N surface of which has been metallized by (1) screen-printing thereon a thick film paste comprising a mixture of finely divided particles of a major amount of a metal powder, a minor amount of glass frits and a small amount of a 50 Al:50 Mg alloy, dispersed in an organic vehicle, and (2) firing the printed surface at a temperature of at least 500° C. to form electrically conductive contacts thereon.

4,375,008

METHOD FOR ENCAPSULATING COMPONENTS WITH CASES AND AN ENCAPSULATION PROVIDED BY THE METHOD

Joachim Dathe, Munich, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Filed Apr. 28, 1980, Ser. No. 144,024
Claims priority, application Fed. Rep. of Germany, May 4, 1979, 2918106
Int. Cl.³ H05K 5/06; H01R 43/00
U.S. Cl. 174—17.05 12 Claims



1. Encapsulation for a semiconductor component, comprising a base plate, a case with a low hydrogen permeability at the maximal temperature permitted for the component, said case being vacuum-welded to said base plate closing off said base plate and tempered in a hydrogen-containing atmosphere, a hydrogen atmosphere disposed in said case after tempering, a raised portion integral with said base plate inside said case, a plurality of lead-in lines passing through holes formed in said base plate and raised portion, glass beads disposed between said lead-in lines and said base plate and raised portion in said holes, and gold wires connected from said lead in lines to aluminum surfaces of the component in said case before said case is closed.

4. Method according to claim 1, which comprises disposing a hydrogen barrier layer on the case to prevent hydrogen from diffusing out of the case after tempering.

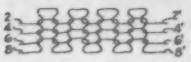
4,375,009

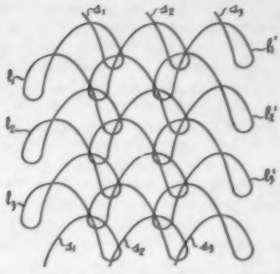
SHIELDED ELECTRICAL CABLE

James T. Fearnside, Lexington, and Thomas P. Stephens, Boxford, both of Mass., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Dec. 10, 1980, Ser. No. 214,933
Int. Cl.³ H01B 7/34
U.S. Cl. 174—36 3 Claims

1. An electrical cable, comprising
an electrically insulating sheath,
a plurality of insulated electrical conductors mounted within said sheath, and
shielding made from wire that is knit with said wire in the





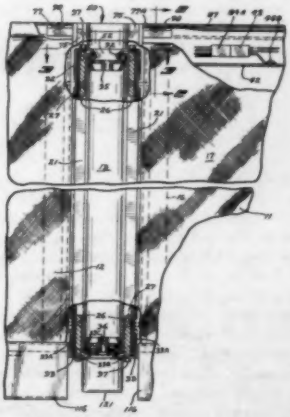
form of an integral sleeve encompassing said sheath, said wire having a steel core, a first coating of metal of greater conductivity than said steel core and a second coating of a metal having greater lubricity than the first coating.

4,375,010

PANEL CONSTRUCTION INCLUDING ELECTRICAL CONNECTORS

Lloyd C. Mollenkopf, Akeley, Minn., assignor to Rosemount Office Systems, Inc., Lakeville, Minn.

Filed Dec. 12, 1980, Ser. No. 215,691
Int. Cl.³ H02G 3/00
U.S. Cl. 174—48 14 Claims



1. In combination with a pair of movable wall partitions, an assembly for shielding electrical wiring harnesses for passing from one movable wall partition to the other at the top of the junction region of the movable wall partitions, the movable partitions including metal channels forming electrical raceways along the top longitudinal length thereof and support members for coupling adjacent movable wall panels together, said assembly being separate from the support members and comprising a first generally cylindrical member adapted to be positioned with its center substantially centered between the movable partitions, at least one additional generally cylindrical member rotatably mounted on the first mentioned cylindrical

member for rotation relative thereto, a pair of panel insert members having portions adapted to fit within end portions of raceways of any movable partition with which the assembly is used, means to removably couple each of said panel insert members to one of the generally cylindrical members whereby each of the panel insert members can be rotated with one of the general cylindrical members relative to each other when installed on movable partitions, electrical wire means mounted in said raceways, said electrical wire means including connectors at opposite ends thereof adjacent the opposite sides of the respective partitions, and each connector having a ground wire connection with a ground wire attached thereto, and the ground wires from the opposite end connectors being connected to the associated metal channel raceway adjacent the respective ends of the associated raceway to ground the raceway and retain the connectors adjacent the respective ends of the raceway, and electrical harness means mounted within said panel insert members and traversing across and within the generally cylindrical members, said harness means including harness electrical connectors coupled to first mentioned connectors of the respective wire means in the adjoining movable wall partitions.

4,375,011

CABLE CONNECTOR

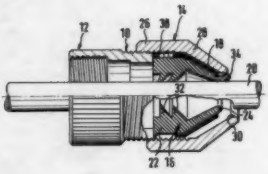
Dietrich Grünau, Säntisblick 5, D - 7778 Markdorf, Fed. Rep. of Germany

Filed Mar. 6, 1981, Ser. No. 241,371

Claims priority, application Fed. Rep. of Germany, May 7, 1980, 3017383

Int. Cl.³ H02G 3/18

U.S. Cl. 174—65 SS **8 Claims**



1. A fluid-tight cable connector for connecting electric cables with switch cabinets, plug-in connections and the like comprising a screw socket provided with an outer thread, a screw nut provided with an inner thread, a tubular rubber packing arranged within the screw nut and a thin-walled anti-rotation bushing arranged between the screw nut and the packing; the screw nut comprising an inner cylindrical portion provided with said inner thread and an inner conical portion, the mouth of which having an overdimension with respect to the cable diameter; the tubular packing comprising a cylindrical portion and a conical portion, the cylindrical portion having a radial front face abutting at a front face of the socket, said packing being provided with at least one deformable inner ring-shaped sealing lip and one outer ring-shaped sealing lip, an annular recess being formed between the cylindrical portion of the packing and the inner thread of the screw unit, the anti-rotation bushing also comprising a cylindrical portion and a conical portion, the cylindrical portion being of shorter axial length than the cylindrical portion of the packing and protruding into said annular recess; the outer conical surface of the packing, the conical portion of the bushing and the inner conical portion of the screw nut having the same angle of taper and substantially the same axial length.

4,375,012

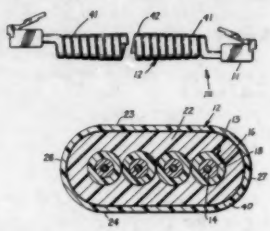
TAPERED RETRACTILE CORDS

Eugene R. Cocco, Baltimore, Md.; William G. Pflugrad, Norcross, Ga., and Byron L. Small, Baltimore, Md., assignors to Western Electric Company, Incorporated, New York, N.Y.

Filed Apr. 29, 1981, Ser. No. 258,713

Int. Cl.³ H01B 7/06

U.S. Cl. 174—69 **2 Claims**



1. A tapered retractile cord which is made from cordage which includes a plurality of flexible conductors that are disposed in a substantially planar array with each of said conductors being insulated with a first thermoplastic material, a jacket which is made of a second thermoplastic material having a stiffness modulus that is substantially less than that of said first thermoplastic material and which encloses said planar array of conductors in a cross-sectional configuration having an inwardly facing side that is parallel to said array, and a coating which covers said jacket and which comprises a plastic material having a stiffness modulus that is substantially greater than that of said second thermoplastic material of said jacekt, said tapered cord including cordage being wound in a helical configuration and being substantially continuously tapered with convolutions thereof increasing in diameter from one end of the tapered cord to a portion intermediate its ends and then decreasing in diameter from said intermediate portion to its other end to provide said tapered cord with a controlled extensibility which increases substantially linearly from each end to said intermediate portion whereat the extensibility exceeds that of a cord comprising said cordage wound along its length in uniform convolutions having a diameter equal to the diameter of end convolutions of said tapered cord.

4,375,013

DEVICE FOR DIGIT RATE REDUCTION OF PCM-SIGNALS

Denis Cointot, Paris; Patrice Langlois, Saint-Maur, and Guy de Passoz, Lesigny, all of France, assignors to Societe Anonyme de Telecommunications, France

Filed Jul. 23, 1980, Ser. No. 171,946

Claims priority, application France, Aug. 10, 1979, 79 20445

Int. Cl.³ G10L 1/00; H04J 3/18

U.S. Cl. 179—15.55 R **3 Claims**

1. A digit rate reducing system for an input PCM signal S, said signal S including a plurality of samples x_n having a period T, comprising a predictor stage, an automatic gain compression AGC stage, and a quantizer stage in cascade arrangement;

said predictor stage comprising predictor means for deriving a predicted signal x_{pn} from a plurality of preceding samples x_n, and subtractor means for substracting from an input signal x_n said predicted signal x_{pn}, to form a difference signal d_n representing prediction error;

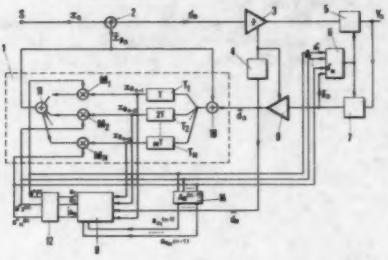
said automatic gain compression AGC stage comprising divider means for dividing the amplitude of said difference signal d_n to form a divided signal e_n;

said quantizer stage comprising first quantizing means for encoding said divided signal e_n to form a signal Y_n of reduced rate relative to said signal S, and second quantiz-

ing means responsive to said signal Y_n for providing a decoded signal e_n;

said automatic gain compression AGC stage further comprising means responsive to said decoded signal e_n for forming a decoded difference signal d_n in accordance with said signal Y_n;

said predictor stage further comprising first adder means coupled to receive said predicted signal x_{pn} and said decoded difference signal d_n, and having an output signal, means for deriving from said plurality of preceding samples x_n a plurality of coefficients a_i (n), where $1 \leq i \leq N$, according to a predetermined algorithm, a plurality of multiplier means $M_1 \ldots M_N$ coupled to receive the output signal from said first adder, delay line means $T_1 \ldots T_N$



coupled between said first adder means and said respective multiplier means $M_1 \ldots M_N$, said delay line means $T_1 \ldots T_N$ providing respective delays of kT where $1 \leq k \leq N$, said plurality of multiplier means $M_1 \ldots M_N$ receiving said plurality of coefficients a_i (n) respectively and having respective outputs, second adder means coupled to receive said outputs of said plurality of multiplier means $M_1 \ldots M_N$ and having an output for providing said signal x_{pn} predicted from said plurality of preceding samples x_n; and

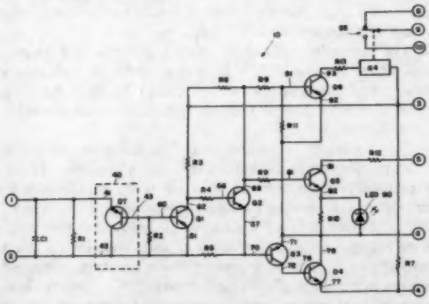
means respective to said plurality of coefficients a_i (n) for comparing at least one of said coefficients a_i (n) with a predetermined value to determine the statistical properties of said signal S, said comparing means being coupled to said quantizer stage for adapting the type of encoding to said statistical properties of said signal S.

4,375,014

CURRENT SENSING TRIGGER FOR A TELEPHONE SYSTEM

Allen C. Horak, Carson City, Mich., assignor to Great Lakes Communication Co. of Michigan, Carson City, Mich.

Filed Feb. 17, 1981, Ser. No. 234,722
Int. Cl.³ H04Q *1/36*
U.S. Cl. 179—16 EA **40 Claims**



1. A loop closure seizure step-by-step telephone system comprising:

a first subscriber telephone set;

a central switching station;

means for interconnecting said first subscriber telephone set and said central switching station;

a stepping switch for connecting said first subscriber telephone set to a second subscriber telephone set;

means for generating dial pulses representative of a number being dialed on said first subscriber telephone set;

first and second semiconductor barrier means disposed in a series circuit relationship for receiving said dial pulses, said dial pulses establishing current therethrough;

means for sensing a trigger voltage between said first and second semiconductor barrier means when a current is established therethrough; and

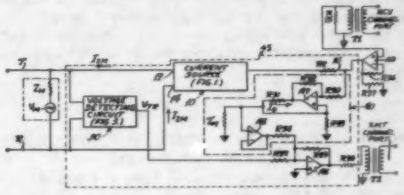
means for amplifying said trigger voltage and operating said stepping switch to connect said first subscriber telephone set and a second subscriber telephone set pursuant to a number dialed on said first subscriber telephone set.

4,375,015

IMPROVED ELECTRONIC HYBRID CIRCUIT

Charles W. Chambers, Jr., Downers Grove, Ill., assignor to Tellabs, Inc., Lisle, Ill.

Division of Ser. No. 45,274, Jun. 4, 1979, Pat. No. 4,283,604. This application Jul. 3, 1980, Ser. No. 165,508
Int. Cl.³ H04B *1/58*
U.S. Cl. 179—170 NC **12 Claims**



1. An electronic hybrid circuit for interfacing between receive and transmit channels of a long distance transmission circuit and a two-wire transmission system, for example the tip and ring leads of a telephone pair, for generating a controlled current flow through the system and for providing common mode rejection to longitudinal voltages on the system, said hybrid circuit having first and second outputs each for connection with a separate one of the wires and comprising first and second voltage amplifier means each having an input, an output and an output impedance connected between the amplifier means output and a separate one of said hybrid circuit outputs, said first voltage amplifier means output being connected through its output impedance with said hybrid circuit first output; means for connecting said first amplifier means output with said second amplifier means input so that voltage signals at said first voltage amplifier means input control the voltages generated at each of said amplifier means outputs; feedback means coupled between said hybrid circuit first output and said first amplifier means input; and circuit means coupled between said hybrid circuit outputs and said first amplifier means input, said feedback means and said circuit means coupling signals at said hybrid circuit outputs from the wires of the transmission system to said first amplifier means input, said feedback means and said circuit means in response to equal longitudinal voltages on the wires coupling to said first voltage amplifier means input signals which cancel to zero thereat so that said first and second voltage amplifier means do not generate voltages at their outputs in response to equal longitudinal voltages on the wires, whereby said hybrid circuit has common mode rejection to equal longitudinal voltages on the wires; wherein said first and second amplifier means each generate zero volts or reference potential at their outputs in response to equal longitudinal voltages on the wires and substantially equal value and oppo-

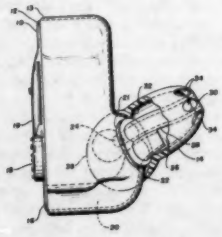
site direction current flows through their output impedances, and therefore at said hybrid circuit outputs, in response to and having a value in accordance with noncancelling signals at said first amplifier means input, wherein said two-wire transmission system is of the type having a metallic load impedance connected in series with a metallic voltage source across the wires, and further including means for coupling the receive channel with said feedback means and therefore with said first voltage amplifier means input for generating at said hybrid circuit outputs and through the load impedance a current flow having a value in accordance with the value of the voltage on the receive channel, said current flow through the load impedance generating a metallic voltage across the wires; voltage detecting circuit means coupled at inputs thereto with said hybrid circuit outputs for sensing the metallic voltage across the wires and for generating at an output therefrom a first control voltage having a value in accordance with the metallic voltage; third voltage amplifier means having an input and an output; means for coupling said third voltage amplifier means output with the transmit channel; means for coupling said voltage detecting circuit means output with said third voltage amplifier means input; monitoring means coupled at an input thereto with said means for coupling the receive channel with said feedback means for monitoring the value of signals on the receive channel and for generating at an output therefrom a second control voltage having a value in accordance with the value of the receive channel signals; and means for coupling said monitoring means output with said third amplifier means input so that said first and second control voltages which are generated in response to receive channel signals cancel each other at said third amplifier means input, whereby said third amplifier means does not generate an output in response to receive channel signals but generates an output in response to a metallic voltage generated across the two wires by the metallic voltage source.

4,375,016

VENTED EAR TIP FOR HEARING AID AND ADAPTER COUPLER THEREFORE

Mas Harada, Minneapolis, Minn., assignor to Qualitone Hearing Aids Inc., Minneapolis, Minn.

Filed Apr. 28, 1980, Ser. No. 144,340
Int. Cl.³ H04R *25/02*
U.S. Cl. 179—182 R **6 Claims**



5. An insertable earpiece comprising, in combination:

an elongated generally cylindrical hollow housing with a bulbous tip portion ventilated by a plurality of apertures in a distal end thereof and a flared proximal tip portion with an inner annular shoulder angled to the axis of said housing;

a flanged adapter fitting seated against the inner annular shoulder of said housing to close the proximal end of said housing, said fitting including a sound tube projecting into said housing to communicate with at least one of said apertures in the distal end of said tip portion while more than one of the plurality of said apertures communicates with a chamber in said housing; and

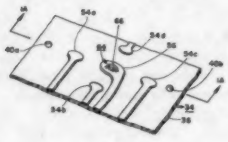
a vent tube projecting through said fitting into said chamber to provide a path from the auditory canal through said chamber to the outside, said vent tube portion extending into said housing being shorter than said sound tube and the other end of said vent tube being angled away from the axis of the tube delivering sound to said fitting.

4,375,017

CALCULATOR TYPE KEYBOARD INCLUDING PRINTED CIRCUIT BOARD CONTACTS AND METHOD OF FORMING

Theodore D. Smith, Indianapolis, Ind., assignor to RCA Corporation, New York, N.Y.

Continuation of Ser. No. 748,026, Dec. 6, 1976, abandoned. This application Mar. 26, 1980, Ser. No. 134,214
Int. Cl.³ H01H *13/70, 1/00, 11/04*
U.S. Cl. 200—5 A **10 Claims**



1. Apparatus comprising:

a printed circuit board including a dielectric substrate and a conductive layer formed on the surface of the dielectric substrate;

an impact crater formed in said conductive layer at an imperforate portion of said dielectric substrate having an abrupt raised edge integral with the material of said conductive layer and extending outward from the surface of said conductive layer;

a movable member positioned over said raised edge of said impact crater; and

means for urging said movable member into contact with said edge of said impact crater.

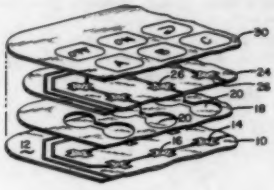
7. The apparatus recited in claim 1 wherein said printed circuit board includes at least a second conductor including a contact area positioned to be contacted by said movable contact member before said edge is contacted by said movable contact member.

8. The apparatus recited in claim 7 wherein said movable contact member includes support arms extending inward from the periphery of an aperture in a generally planar web to intersect in a crisscross configuration at least a portion of which is contoured in a dome-like shape, said dome-like shape having an apex in general alignment with said fixed contact member; and at least one contact blade extending outward from the intersection of said support arms, said contact blade contacting said contact area of said second conductor before an area of said dome-like shape at least in proximity to said apex contacts said edge of said fixed contact member.

4,375,018
MEMBRANE SWITCH HAVING ADHESIVE LABEL AS EDGE SEAL

Stephen K. Petersen, Rosemount, Minn., assignor to Sheldahl, Inc., Northfield, Minn.

Filed Jun. 16, 1980, Ser. No. 159,954
Int. Cl.³ H01H *13/70*
U.S. Cl. 200—5 A **4 Claims**



1. A membrane switch comprising:

(a) a first substrate member formed from a flexible insulative material having a first pattern of conductive elements at predetermined coordinate locations thereon;

(b) an insulative spacer member superimposed on said first substrate member and having a pattern of apertures therethrough at said predetermined coordinate locations, said spacer member being of a smaller size such that when superimposed on said first substrate member with said pattern of apertures aligned with said first pattern of conductive elements, a predetermined area of said first substrate member proximate the periphery thereof extends outwardly beyond the edges of said spacer member;

(c) a second substrate member formed from a flexible insulative material superimposed on said spacer member having a second pattern of conductive elements at predetermined coordinate locations corresponding to said predetermined coordinate locations of said apertures on said spacer member, said second substrate being of a smaller size than said spacer member such that when superimposed on said spacer member with said second pattern of conductive elements aligned with said apertures, a predetermined area of said spacer member proximate the perimeter thereof extends outwardly beyond the edges of said second substrate member; and

(d) a flexible insulative cover layer overlying said superimposed members in superficial engagement with at least peripheral portions thereof, and having an adhesive coating on one major surface thereof for individually bonding and sealing at least perimeter portions of said second substrate, said spacer member and said first substrate member to said cover layer.

4,375,019
DEVICE FOR ADJUSTING POSITION OF DRIVE ELEMENT FOR OPENING AND CLOSING AUTOMATICALLY HORIZONTALLY OPENING AND CLOSING SLIDING DOOR

Kenji Yoshida, Tokyo, Japan, assignor to Solic Co., Ltd., Tokyo, Japan

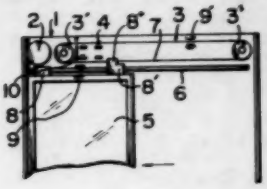
Filed Oct. 7, 1980, Ser. No. 194,780
Int. Cl.³ H01H *3/12;* **F05F** *15/20*
U.S. Cl. 200—52 R **3 Claims**

1. A device for adjusting the opening and closing position of a sliding door by adjusting at least one drive element thereof, comprising in combination:

(a) guide rails (6) disposed above a defined door station for guiding a sliding door (5) therealong;

(b) an endless wire mechanism (3) driven by a motor (2) including controller means (1), said mechanism including endless means (7) extending across said door station held by pulleys along a travel path;

(c) driven element switch means (4) and at least one position adjustable drive element (9) mounted on said endless means (7), said drive element (9) having a U-shaped frame (12) protruding ends (13) with magnet means actuators (14) for enabling said driven element switch means (4) and elastic means (15) holding said drive element (9) to said endless wire mechanism (3) but permitting said drive element (9) to slide along said mechanism when the elastic



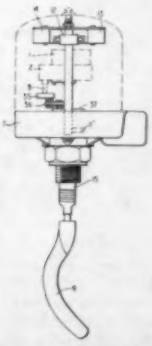
force is overcome so that the drive element may be positioned at desired locations along said travel path, said drive element being adapted to enable said driven element switch means (4); and,

(d) a stopper (10) along said travel path, said stopper (10) having grooves (11) so disposed as to stop said drive element (9) to contact the driven element switch means (4).

4,375,020
OSCILLATING LEVEL INDICATOR

Johan L. M. Holterbosch, Bunnik, Netherlands, assignor to Magnetrol International, Zele, Belgium

Continuation of Ser. No. 36,548, May 7, 1979, abandoned. This application Jun. 15, 1981, Ser. No. 273,456
Claims priority, application Netherlands, May 11, 1978, 7805055
Int. Cl.³ H01H *35/00*
U.S. Cl. 200—61.21 **12 Claims**



1. In a level-indicating apparatus for detecting the level of material within a container, having a drive motor, a motor drive shaft and a switch positioned adjacent the drive motor, the drive motor being energizable by means of the switch to provide continuous rotating motion to the motor drive shaft, said drive motor being movably mounted in a housing for swinging movement to actuate or deactuate said switch, a vane shaft extending out of said housing, and a vane coupled to said vane shaft and adapted to contact the material in said container to cause said swinging movement of said motor when a predetermined resistance is encountered by the vane, the improvement comprising:

an auxiliary drive means interconnecting the motor drive

shaft and the vane shaft to convert said continuous rotating motion of said motor drive shaft into rocking rotative movement, said rocking rotative movement being imparted to said vane shaft to cause movement of said vane in an oscillatory manner about the axis of the vane shaft; and

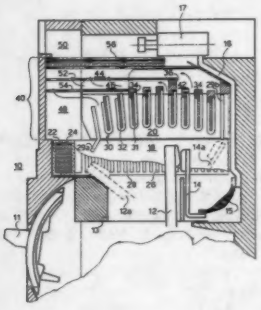
flexible sealing means having first and second ends secured to said vane shaft and to said housing, respectively, so as to be sealed thereagainst and immovable in relation thereto, the flexible sealing means having a central portion capable of torsional flexing in response to the oscillatory movement of the vane shaft and vane.

4,375,021

RAPID ELECTRIC-ARC EXTINGUISHING ASSEMBLY IN CIRCUIT-BREAKING DEVICES SUCH AS ELECTRIC CIRCUIT BREAKERS

Franco P. Pardini, and Francesco De Vizzi, both of Milan, Italy, assignors to General Electric Company, New York, N.Y.

Filed Dec. 16, 1980, Ser. No. 217,062
Claims priority, application Italy, Jan. 31, 1980, 19591 A/80
Int. Cl.³ H01H *33/10*
U.S. Cl. 200—147 B **13 Claims**



1. A current limiting circuit breaker comprising, in combination:

first and second contacts;

first and second elongated current carrying arms respectively carrying adjacent their corresponding one ends said first and second contacts, at least said first arm being movable with respect to said second arm between a closed position in closely spaced, substantially parallel relation with said second arm and with said first and second contacts in engaged relation and an open position with said first and second contacts in separated relation;

an arc chute positioned in confronting relation with said first and second contacts and including a stack of closely spaced, generally parallel ferromagnetic arc plates arrayed along the path travelled by said first contact during opening movement of said first arm, each said arc plate comprised of a thin metallic sheet of relatively high electrical resistivity formed in a U-shaped configuration to provide a pair of closely spaced arms joined by a curved portion disposed in contiguous relation with said travel path of said first contact at one end, said arms having offset terminations at an opposite end, and including a thin electrically insulative sheet interposed between said arms to force arc current to flow along the U-shaped path created by said metallic sheet; and

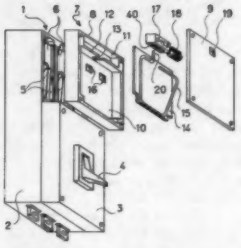
arc motivating means disposed in confronting relation with said arc chute and including a pair of columns flanking said travel path of said first contact, said columns cooperating with said arc plates as said first arm moves to its open position to promote rapid movement of a consequent arc drawn between said contacts into said arc chute to be split up and cooled by said arc plates.

4,375,022

CIRCUIT BREAKER FITTED WITH A DEVICE FOR INDICATING A SHORT CIRCUIT

Bernard Daussin, Mesnil St Laurent, and Jean Hennemann, Hombliéres, both of France, assignors to Alsthom-Unelec, Paris, France

Filed Mar. 19, 1980, Ser. No. 131,720
Claims priority, application France, Mar. 23, 1979, 79 07398
Int. Cl.³ H01H *33/26, 33/54*
U.S. Cl. 200—148 R **9 Claims**



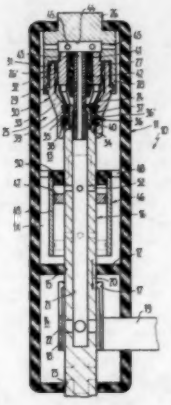
1. In an air-type circuit breaker provided with a device for indicating the existence of a short-circuit and comprising, for each circuit-breaking pole, separable contacts disposed inside a breaking chamber in which an electric arc develops upon separation of the contacts, the improvement wherein said short-circuit indicating device comprises means separate from said contacts and specifically responsive to a gas pressure wave created by said electric arc developed in the breaking chamber at a current level constituting a short-circuit condition of the circuit-breaker as contrasted to an abnormally high over-current, and wherein said short-circuit indicating device comprises a movable member subject both to a stress developd by the gas pressure wave and to an opposing stress, and wherein said movable member comprises a member passable from a first stable "no pressure" position to a second stable "pressurized" position when the stress developed by the gas pressure wave is greater than the opposing stress, means for maintaining said movable member in the "pressurized" position after disappearance of the gas pressure wave, means for restoring it to the "no pressure" position by an intentional resetting action, and wherein said circuit-breaker comprises a closed casing, a pressure wave generated in the breaking chamber being propagated through the entire casing and wherein said short-circuit indicating device comprises a cylinder internally of the circuit breaker casing and integral therewith, an opening within the casing coaxial with said cylinder, a piston mounted within said cylinder and slidable therein and a sealing washer borne by said piston and in frictional engagement with the interior of the cylinder, an indicating element carried by said piston and projectable through said opening within the casing wall, said sealing washer being of a material and being sized to the diameter of the cylinder such that said indicator piston moves from said first position to said second position responsive to a gas pressure wave of predetermined value corresponding to a short circuit condition, and wherein said indicator piston is manually displaceable from said second position to said first position, constitutes said member passable from said first position to said second position, and said sealing washer constitutes said means for maintaining the movable member in the "pressurized" position after disappearance of the gas pressure wave.

4,375,023

GAS-BLAST SWITCH

Hans-Rudolf Wüthrich; Hubert Speigel, both of Oberentfelden; Hermann Lehner, Gränichen, and Peter Krebs, Hirschthal, all of Switzerland, assignors to Sprecher & Schuh AG, Aarau, Switzerland

Filed Apr. 7, 1980, Ser. No. 138,116
Claims priority, application Switzerland, Jul. 10, 1979, 6416/79
Int. Cl.³ H01H 33/70, 33/12
U.S. Cl. 200—148 R 7 Claims



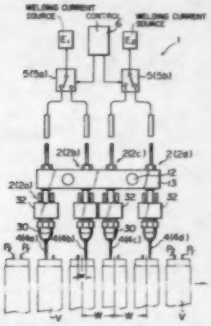
1. A gas-blast switch comprising:
a switch housing containing an internal space;
a first partition wall for dividing the internal space of the switch housing into an extinguishing chamber and an expansion chamber;
a movable substantially tubular-shaped contact element displaceably guided through said partition wall;
said contact element, during a cut-off stroke of the gas-blast switch, establishing a flow communication between both of said chambers;
a fixed contact set arranged in said extinguishing chamber;
said fixed contact set coacting with said movable contact element;
said fixed contact set having a rim of rated current contacts which, in a cut-on position of the gas-blast switch, engages about the movable contact element;
a burn-off ring electrically connected with the rim of rated current contacts;
an intermediate electrode which is electrically insulated from the rated current contacts;
said intermediate electrode, in the cut-on position of the gas-blast switch sealingly engaging with the movable contact element;
said movable contact element during the course of a cut-off stroke initially coming out of engagement with the rated current contacts and only thereafter coming out of engagement with the intermediate electrode, so that initially an arc is drawn between the burn-off ring and the intermediate electrode;
said movable contact element and said fixed contact set defining therebetween a separation path during said cut-off stroke;
a second partition wall for dividing said extinguishing chamber into a zone including said separation path and a zone remote from said separation path;
said burn-off ring being arranged within the rim of rated current contacts and being rearwardly inset with respect to contact surfaces of the rated current contacts which coact with the movable contact element;
a pump device operatively connected with the movable contact element and disposed in said zone remote from said separation path; and
said pump device conveying, during the cut-off stroke of the gas-blast switch, an extinguishing gas out of said zone remote from said separation path through said second partition wall into the zone including said separation path.

4,375,024

APPARATUS FOR WELDING BASE PINS OF FLUORESCENT LAMP

Masatoshi Hayakawa, Nagoya, and Yoshitami Sakazaki, Tajimi, both of Japan, assignors to CKD Corporation, Komaki, Japan

Filed Aug. 14, 1980, Ser. No. 178,108
Claims priority, application Japan, Dec. 14, 1979, 54-162617
Int. Cl.³ B23K 9/00
U.S. Cl. 219—56 5 Claims



1. An apparatus for welding a first base pin at a first location and a second pin at a second location on each of a line of fluorescent lamps arranged along a path for advancement in a direction of advancement, equally spaced by a predetermined distance W, the first pin and second pin on each fluorescent lamp being spaced from each other a predetermined distance w along the path, the lamps being advanced stepwise the distance W in the direction of advancement, said apparatus comprising:
first, second, third, and fourth successively adjacent electrode holders for respectively removably holding first, second, third and fourth welding electrodes, disposed spaced along the path; said first and second electrode holders being spaced from each other a predetermined distance D_1 along the path; said third and fourth electrode holders being spaced from each other the predetermined distance D_1 along the path; said second and third electrode holders being spaced a predetermined distance D_2 along the path; said distances D_1 and D_2 being such that said first and third welding electrodes are both aligned with said lamps for welding only first base pins and said second and fourth welding electrodes are both aligned with said lamps for welding only second base pins;
first switch means, responsive to a first input signal, for alternatively electrically connecting said first and second welding electrodes to an electrical power source;
second switch means, responsive to a second input signal, for alternatively electrically connecting said third and fourth welding electrodes to said power source;
switch control means for providing said first input signal to said first switch means to switch the connection of said power source fom one of said first and second welding electrodes to the other, and for providing said second input signal to said second switch means to switch the connection of said power source from one of said third and fourth electrodes to the other when the lamp located at said second electrode holder when said first input signal

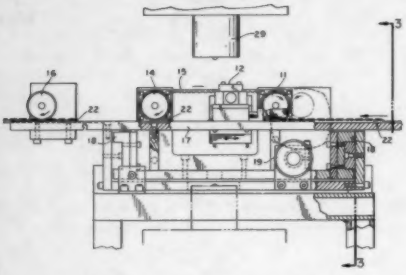
is provided to said first switch means arrives at said fourth electrode holder, so that either said first and fourth welding electrodes or said second and third welding electrodes may be removed without stopping the welding operation or failing to weld any of said first and second pins to said lamps.

4,375,025

LASER STRIP MARKER

William J. Carlson, Erie, Pa., assignor to Automated Industrial Systems, Inc., Fairview, Pa.

Filed Jun. 19, 1980, Ser. No. 161,137
Int. Cl.³ B23K *27/00*
U.S. Cl. 219—121 LH **6 Claims**



1. A strip feed and marking machine comprising,
a frame **10**,
a guide rail,
slidable means supporting said guide rail on said frame and adapted to carry strips **22** of electrical components,
a laser **29** on said frame,
means on said machine to move said strips **14**, **16** along said guide rail,
an electric eye and a light source **27**,
means slidably supporting said electric eye and said light source **27** on said frame,
whereby light from said source **27** to said electric eye is adapted to be intercepted by the leading edges of said electrical components **30**,
said electric eye being connected to said laser **29** to trigger said laser when a leading edge of a said component intercepts said light from said light source to said electric eye whereby said laser is triggered and marks a said electric component,
and first micrometer means **19** connecting said guide rail to said frame for moving said guide rail in a first direction relative to said frame,
a second micrometer means **20** connected to said frame and to said means slidably supporting said electric eye to adjust the position of said electric eye and light source relative to said frame in a said first direction and a third micrometer means **13** connected to said frame and to said means supporting said electric eye to adjust the position of said electric eye and light in a second direction relative to said frame.

4,375,026

WELD QUALITY MONITOR

Frank W. Kearney, Champaign, Ill., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

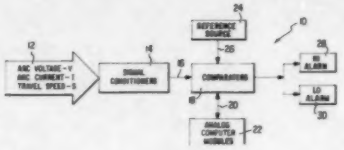
Filed May 29, 1981, Ser. No. 268,216
Int. Cl.³ B23K *9/10*
U.S. Cl. 219—130.01 **10 Claims**

1. A weld quality monitor adapted for use with an electric arc welding machine producing a weld bead, comprising:

voltage sensor means for producing a signal indicative of weld voltage of said arc welding machine;

current sensor means for producing a signal indicative of weld current of said arc welding machine;

speed sensor means for producing a signal indicative of weld speed of said arc welding machine including two noncontacting radiation responsive sensors spaced longitudinally of said weld bead each generating an output signal, and further comprising comparator means responsive to said



two output signals for comparing same and producing a signal indicative of temperature difference along said weld bead, wherein said temperature difference is indicative of said weld speed; reference signal generating means for generating reference signals indicative of optimum weld voltage, optimum weld current and optimum weld speed; and

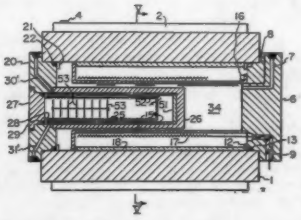
comparator means for comparing said reference signals to said weld voltage signal, said weld current signal and said weld speed signal.

4,375,027

DUAL CHAMBERED HIGH PRESSURE FURNACE

Robert J. Zeto, Lincroft, N.J., and Franz X. Zimmerman, Erie, Pa., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Division of Ser. No. 13,436, Feb. 21, 1979, Pat. No. 4,235,841, which is a continuation-in-part of Ser. No. 829,883, Sep. 1, 1977, abandoned. This application Jun. 2, 1980, Ser. No. 155,334
Int. Cl.³ B01J *3/04*
U.S. Cl. 219—390 **2 Claims**



1. A double chambered high pressure furnace for treating specimens and workpieces with process gases at elevated pressures and temperatures comprising

a. a cylindrical pressure vessel,

b. a rear end closure device for sealing one end of the cylindrical pressure vessel,

c. an electrical heating element supported within the interior of the cylindrical pressure vessel near the inner wall thereof,

d. an apertured front end closure device for partially sealing the other end of the cylindrical pressure vessel,

e. a relatively thin-walled inner container supported from the front closure device and opening only to the aperture in the front closure device, the said inner container interior defining a process chamber, and the inner container exterior along with the pressure vessel and end closure defining a furnace chamber, both chambers being sealed from the atmosphere,

f. a small closure device for sealing the aperture in the front closure such that the inner container and small closure define a process chamber isolated from the furnace chamber,

g. means for securing the front closure, small closure and rear closure devices,

h. means for introducing blanket gasses from a source of pressurized blanket gas to the furnace chamber and process gases from a source of pressurized process gas to the process chamber, said means for introducing process gases comprising passages in said front end closure,

i. means for minimizing the pressure difference between the gases on each side of the inner container to enable it to maintain its original shape, said minimizing means comprising means for sensing the pressure difference, if any, and in response to that difference, controlling the relative application of the sources of blanket and process gases to the furnace chamber and process chamber respectively, and

j. means defining a first oxidation resistant liner on the inside of said inner container, means defining a second oxidation resistant liner radially spaced from said first liner, the space between said first and s . . ond liners defining a passage opening into the process chamber at the end opposite the front closure, said passage in communication with one of the passageways in the front end closure device whereby purge or process gases passing through said passage are heated before being directed into the process chamber.

k. additionally comprising within said second oxidation resistant liner isothermal plates serving to reduce cooling at the ends of the workspace.

4,375,028

ELECTRIC KETTLE

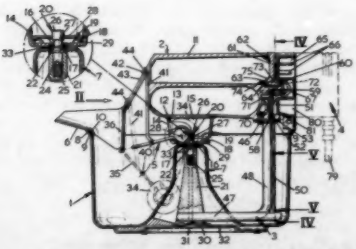
Paul A. P. Wood, Richmond, England, assignor to Pifco Limited, Manchester, England

Filed Mar. 31, 1981, Ser. No. 249,528

Claims priority, application United Kingdom, Apr. 1, 1980, 8010875; Apr. 24, 1980, 8013549; Sep. 27, 1980, 8031304

Int. Cl.³ F27D *11/02*

U.S. Cl. 219—441 **11 Claims**



1. An electric kettle comprising a bowl, a lid for closing the bowl, a spout through which the bowl can be filled with water, and electrical heating element which is connected to the lid and suspended within the bowl when the lid is fitted on the kettle, means whereby the element can be connected to an electricity supply, and a cut-out arrangement for the heating element comprising a switch operable by a shape memory effect actuator, which is located within the bowl adjacent the element and on attainment of a predetermined temperature, greater than the boiling temperature of water, changes its physical shape sufficiently to operate the switch and thereby prevent the element being supplied with current from the supply.

4,375,029

CONTROL APPARATUS FOR THERMAL EQUIPMENT PARTICULARLY A HEAT ENGINE

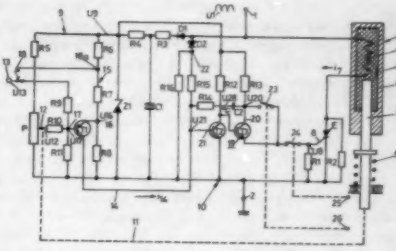
Per G. Zacho, Nordborg, and Kjeld Ahrendsen, Sonderborg, both of Denmark, assignors to Danfoss A/S, Nordborg, Denmark

Continuation of Ser. No. 64,995, Aug. 9, 1979, abandoned, which is a continuation of Ser. No. 915,736, Jun. 15, 1978, abandoned. This application Sep. 24, 1980, Ser. No. 190,636

Claims priority, application Fed. Rep. of Germany, Jun. 24, 1977, 2728380

Int. Cl.³ H05B *1/02*

U.S. Cl. 219—493 **1 Claim**



1. Control apparatus for a heat actuated device of the type having a heating resistor and a spring biased motor member movable in response to heat generated by said resistor, comprising, a controlled rectifier in series with said resistor, a source of full wave rectified voltage for said heating resistor controlled transistor having the emitter thereof connected to said rectifier to effect triggering thereof, said input transistor effecting a turning on and triggering occurrences of said output transistor upon each turning off of said input transistor, a first signal means derived from said source of voltage connected through resistor means to the base of said input transistor effective alone in the absence of other signals to effect turning said input transistor on and off during each half cycle thereof, second signal means comprising R-C circuit means connected to the collector of said output transistor and said base of said input transistor providing a time-dependent decreasing current signal subsequent to each of said triggering occurrences for delaying the turning off of said input transistor, third signal means connected to said motor member for producing a current signal corresponding to the actual position of said motor member, said third signal means being connected to said base of said input transistor to supplement said first and second signals to effect a delay of said triggering for a number of said half cycles corresponding to the instant position of said motor member, said first signal means derived from said full wave rectified voltage providing synchronization whereby said input transistor is turned on during every half cycle thereof to provide cyclical interruption of said triggering.

4,375,030

EXTENDED RANGE VARIATOR CONVERSION MECHANISM

Raymond H. Devanney, Winsted, Conn., assignor to Veeder Industries Inc., Hartford, Conn.

Continuation-in-part of Ser. No. 70,718, Aug. 29, 1979, Pat. No. 4,269,078. This application May 1, 1981, Ser. No. 259,708

Claims priority, application Australia, Aug. 18, 1980, 61530/80; European Pat. Off., Aug. 21, 1980, 80302901.6

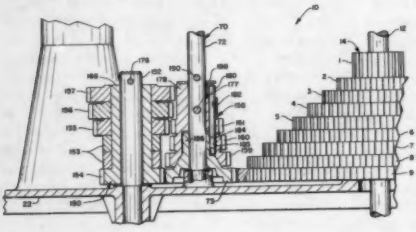
The portion of the term of this patent subsequent to May 26, 1998, has been disclaimed.

Int. Cl.³ F16H *3/22*

U.S. Cl. 235—61 L **16 Claims**

1. In an extended range unit volume price variator settable for establishing the amount of each place of a multiple place

unit volume price and having a rotary input with a primary stack of coaxial gears adapted to be rotated by a fluid meter in accordance with the volume amount of metered fluid; a plurality of rotatable drive range arm assemblies for a plurality of places of ascending order respectively of the multiple place unit volume price having respective rotatable range arm shafts with axes radially offset from and generally parallel to the axis of the primary gear stack, respective range arms pivotally and axially shiftable on the respective range arm shafts for selective engagement with the primary stack of gears for rotating the respective range arm shafts therewith, and a range arm output gear on each range arm shaft; a rotary differential gear mechanism coaxial with the primary gear stack in engagement with the range arm output gears for combining the rotatable drives through the range arms with relative drive ratios in accordance with their respective places; and an auxiliary higher place price selector mechanism for establishing a next higher place price to said plurality of places of ascending order and having an auxiliary rotatable drive take-off assembly with a rotatable take-off shaft generally parallel to and radially offset from the primary gear stack, a take-off shaft input gear driven by the rotary input and rotatably mounted on the take-off shaft for being coupled to the take-off shaft, and an auxiliary take-off shaft driven gear driven by the take-off shaft; a rotary auxiliary differential in operative engagement with said differential gear mechanism; and an auxiliary higher place selector with a shiftable selector lever shiftable between a plurality of operational positions thereof and a selector gear rotatably mounted on the



selector lever for operatively interconnecting the auxiliary take-off shaft driven gear and auxiliary differential in a first operational position of the selector lever; the auxiliary differential being operable for combining the rotatable drives through the differential gear mechanism and selector gear with relative drive ratios in accordance with the respective places of the unit volume price and whereby, with the take-off shaft input gear coupled to the take-off shaft, the selector lever is adapted to be selectively shifted to its said first position for selectively establishing a said next higher place whole number price of a; the improvement wherein the extended range variator further comprises a standby conversion mechanism for selectively converting the auxiliary higher place price selector mechanism for selectively establishing a said next higher place whole number price of b, the standby conversion mechanism comprising an auxiliary compound gear with a plurality of gears including first and second gears, means for rotatably supporting the auxiliary compound gear with said first gear thereof in operative engagement with said take-off shaft input gear to be driven thereby, a first take-off shaft drive gear mounted on the take-off shaft for operative engagement by said second gear of said compound gear and for rotating the take-off shaft, and means for selectively coupling said take-off shaft input gear to the take-off shaft for selectively driving the shaft directly with said input gear at a first drive ratio and alternatively via the compound gear and said first take-off shaft drive gear at a second drive ratio which is b/a times the said first drive ratio for selectively establishing a said next higher place price of b with the selector lever in its said first position.

4,375,031

METHOD AND DEVICE FOR MEASURING A DEGREE OF EXHAUSTION OF PHOTOGRAPHIC PROCESSING SOLUTIONS

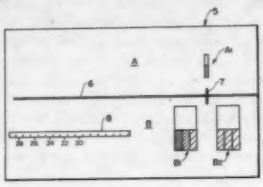
Yujiro Kaneko, and Hiroshi Fujisaki, both of Tokyo, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Mar. 3, 1981, Ser. No. 239,927

Claims priority, application Japan, Mar. 6, 1980, 55-29690[U]

Int. Cl.³ G06C *3/00*; G03C *1/00*

U.S. Cl. 235—64.7 **11 Claims**



1. An exhaustion degree measuring device for determining a degree of exhaustion of a photographic processing solution, comprising:

a photographic strip, said strip having first and second strip parts which have been previously exposed to said processing solution, said first and second strip parts having first and second variable densities, respectively, along a length thereof, said strip having first and second scales adjacent said first and second strip parts; and

a measuring board, said board having a base member having first and second reference density windows therein, said first and second reference density windows having first and second reference density parts and first and second transparent parts adjacent thereto, respectively, said first reference density part having a first predetermined reference density, a middle section of said second reference density part having a second predetermined reference density; whereby

said first strip part is placed under said first transparent part of said first reference density window and said first strip part is moved relative thereto until a first portion of said first strip part having a density equal to said predetermined reference density of said first reference density part is adjacent said first reference density part, a first value indicative of said degree of exhaustion of said photographic processing solution being indicated by a point on said first scale adjacent said first portion of said first strip part; further whereby

said second strip part is placed under said second transparent part of said second window and moved relative thereto until a second portion of said second strip part having a density equal to said second predetermined reference density is adjacent said middle section of said second reference density part so that a second value on said second scale adjacent said second portion can be determined.

4,375,032

TRANSACTION PROCESSING SYSTEM

Yasuo Uchida, Takatsuki, Japan, assignor to Omron Tateisi Electronics Co., Kyoto, Japan

Filed Feb. 5, 1981, Ser. No. 231,845

Claims priority, application Japan, Feb. 7, 1980, 55-15070

Int. Cl.³ G06K *5/00*; H04Q *3/00*

U.S. Cl. 235—380 **3 Claims**

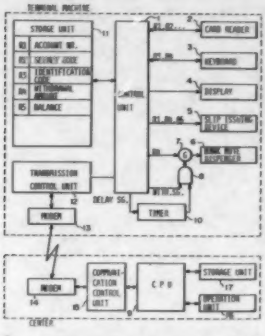
1. A transaction processing system including a terminal machine for automatic cash transactions initiated with record media inserted by user, comprising:

means for reading data on said record media inserted by users,

means for storing data representative of unvalid record media,

means for comparing said read data to said stored data,

means for delaying said transactions by a predetermined time period sufficient to provide notification of invalidity



when said comparing means has detected that said read data is related to said stored data, and means for completing the cash transactions whether or not there is a delay.

4,375,033

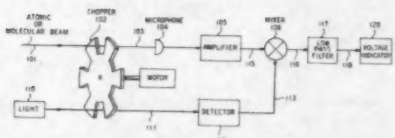
UNIVERSAL DETECTOR FOR ATOMIC AND MOLECULAR BEAMS

John E. Bjorkholm, Holmdel, and Jonathan C. White, Lincroft, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Mar. 9, 1981, Ser. No. 241,718

Int. Cl.[3] **G01D** *18/00;* **G12B** *13/00;* **B01D** *59/44;* **H01J** *49/40*

U.S. Cl. 250—251 **6 Claims**



1. Apparatus for detecting the presence of an atomic or molecular beam comprising chopper means for interrupting said atomic or molecular beam at a predetermined rate in order to produce a spatially modulated beam, microphone means having an electrical output and a pressure-sensitive surface that is oriented to receive said spatially modulated beam, means for detecting the presence of energy in said electrical output at a frequency corresponding to said predetermined rate.

4,375,034

PASSIVE INFRARED INTRUSION DETECTION SYSTEM

John K. Guscott, Lynnfield, Mass., assignor to American District Telegraph Company, New York, N.Y.

Filed Jul. 28, 1980, Ser. No. 173,124

Int. Cl.[3] **G01J** *1/00*

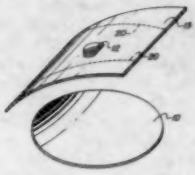
U.S. Cl. 250—342 **26 Claims**

1. A passive infrared intrusion detection system comprising:

a mirror assembly including a focusing mirror having a focal length providing a relatively narrow field of view in a first plane; and

at least one mirror having a two dimensional surface selectively curved along one of the dimensions of the surface only and cooperative with the focusing mirror to provide a relatively large field of view in a second plane transverse to the first plane; and

a detector disposed at the focus of the focusing mirror and operative to provide electrical signals in response to and



representative of radiation received from the fields of view.

4,375,035

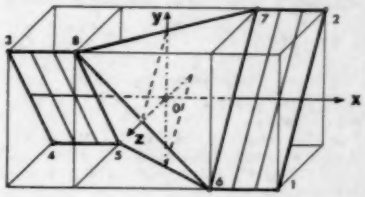
TETRAHEDRAL WINDMILL

Theodore O. Groeger, 2 Collamore Cir., West Orange, N.J. 07052

Filed Apr. 3, 1981, Ser. No. 251,006

Int. Cl.[3] **F03B** *3/14;* **F03D** *7/02, 11/02, 11/04*

U.S. Cl. 290—55 **16 Claims**



1. An adjustable reaction turbine comprising: (a) a tetrahedral support structure whose opposite edges are of equal length; (b) at least one blade extending into opposite edges of said structure; (c) an axis of rotation pivotally and/or torsionally attached to said structure's center and extending to a load and (d) adjustable means for moving said axis toward the center of any of the tetrahedral edges, whereby said turbine's speed and/or direction of rotation is changed.

4,375,036

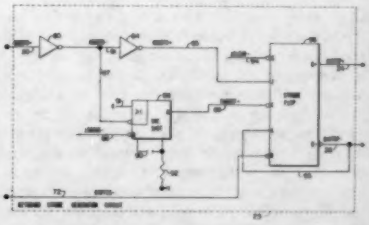
KEYBOARD STROBE GENERATION SYSTEM

Robert C. Miller, Braintree, and David B. O'Keefe, Westford, both of Mass., assignors to Honeywell Information Systems Inc., Waltham, Mass.

Filed Jun. 9, 1980, Ser. No. 157,748

Int. Cl.[3] **H03K** *17/56, 5/00*

U.S. Cl. 307—247 A **6 Claims**



1. A strobe generator for generating an output strobe signal in response to an input strobe signal, said output strobe signal

indicating to a utilization device when valid keyboard generated information may be sampled, said strobe generator comprising:

(a) a retriggerable circuit means having a fourth data input for receiving a filtered input strobe signal derived from said input strobe signal, said retriggerable circuit means for producing a clocking signal at a third data out of said retriggerable circuit means a predetermined period of time after any noise transition in said input strobe signal subsides; and

(b) a JK flip-flop having a first data input, a second data input, a clock input, a first data output and a reset input, said first data input coupled to receive said filtered input strobe signal, said clock input coupled to said third data output of said retriggerable circuit means to receive said clocking signal, said second data input coupled to said first data output, said JK flip-flop for producing an output strobe signal at said first data output wherein said output strobe signal is in a second state when said JK flip-flop is in a first state and in a first state when said JK flip-flop is in a second state and wherein said JK flip-flop transitions from said second state to said first state to indicate that said keyboard generated information may be sampled, said reset input for receiving a reset signal for resetting said JK flip-flop to said second state after said utilization device has sampled said keyboard generated information.

4,375,037

RECEIVING CIRCUIT

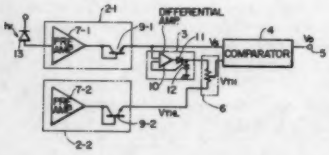
Ichiro Ikushima, Kokubunji, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed Jan. 6, 1981, Ser. No. 222,768

Claims priority, application Japan, Jan. 7, 1980, 55-170

Int. Cl.³ H03K *5/08, 5/153, 5/24*

U.S. Cl. 307—268 **10 Claims**



1. A receiving circuit for detecting and regenerating a pulse signal, comprising a preprocessing circuit having a predetermined circuit composition which receives digital signals having low and high amplitude valves as input signals, a reference voltage circuit which produces a reference voltage on the basis of the output signal of said preprocessing circuit, and a comparator circuit which compares the output signal of said preprocessing circuit with said reference voltage for regenerating said digital signals, said reference voltage circuit comprising a peak detector circuit connected to the output of said preprocessing circuit for detecting the maximum value of the output of said preprocessing circuit, means including a reference preprocessing circuit which has the same circuit composition as that of said first-mentioned preprocessing circuit and to which no input signal is applied for producing an output voltage having a predetermined relationship to said low amplitude value of said input signals, and a voltage divider circuit which divides the sum of the output voltage of said peak detector circuit and the output voltage of said reference preprocessing circuit, the divided output of said voltage divider circuit being applied as said reference voltage to said comparator circuit along with the output of said first-mentioned preprocessing circuit.

4,375,038

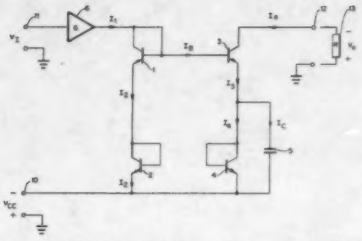
RMS CONVERTER

John B. Crosby, Yorba Linda, Calif., assignor to Beckman Instruments, Inc., Fullerton, Calif.

Filed Aug. 10, 1979, Ser. No. 65,691

Int. Cl.³ G06G *7/163;* **H03K** *17/74;* **G06G** *7/24*

U.S. Cl. 307—492 **13 Claims**



1. An electrical circuit which provides a unidirectional output current whose average value is proportional to the root-mean-square (RMS) value of a time-varying input signal, comprising

an output terminal out of which flows the output current;

a common node;

a rectifying circuit, adapted for receiving the input signal, which includes a current node and which produces a unidirectional current flowing out of the current node whose value is proportional to the absolute value of the input signal;

a voltage source terminal, adapted for connection to a voltage source;

a first transistor whose collector connects to the voltage source terminal and whose base connects to the current node;

a second transistor whose collector connects to the current node and whose base connects to the emitter of the first transistor;

a first semiconductor rectifier connected between the emitter of the second transistor and the common node;

a third transistor whose collector connects to the output terminal and whose base connects to the base of the second transistor;

a second semiconductor rectifier connected between the emitter of the third transistor and the common node; and

a capacitor connected to, and in parallel with, the second semiconductor rectifier.

4,375,039

SENSE AMPLIFIER CIRCUIT

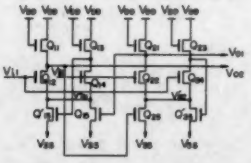
Takahiko Yamauchi, Yokohama, Japan, assignor to Fujitsu Limited, Kanagawa, Japan

Filed Jan. 30, 1980, Ser. No. 116,993

Claims priority, application Japan, Feb. 7, 1979, 54-13061

Int. Cl.³ H03K *5/24, 19/017;* **H03F** *3/45*

U.S. Cl. 307—530 **15 Claims**



1. A sense amplifier circuit comprising:

first and second differential amplifiers connected to a first power supply line, each comprising means for receiving first and second input signals to said sense amplifier with opposite phases and for supplying first and second output signals with opposite phases;

a first reference transistor connected between the first differential amplifier and a second power supply line and controlled by the first output signal of said second differential amplifier, whose phase is the same as that of said first input signal;

a second reference transistor connected between said second differential amplifier and said second power supply line and controlled by the first output signal of said first differential amplifier, whose phase is the same as that of said second input signal; and

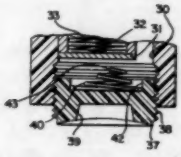
means for providing two output signals from said sense amplifier circuit having opposite phase, each being selected from said first and second output signals of different ones of said first and second differential amplifiers.

4,375,040

BRUSH HOLDER ASSEMBLY

William D. Sauerwein, Westminster, Md., assignor to Black & Decker Inc., Newark, Del.

Filed Aug. 14, 1981, Ser. No. 292,435
Int. Cl.³ H02K *13/00*
U.S. Cl. 310—239 **3 Claims**



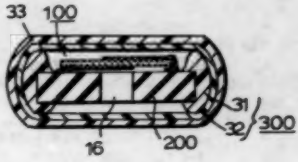
1. A brush holder assembly, comprising: an insulating body portion having an inner end and an outer end and further having a through opening internally threaded at its outer end, the body portion further having an externally-accessible lateral opening communicating with the through opening, an internal shoulder within the body portion adjacent to the lateral opening, a conductive brush insert slidably received within the through opening and having an integrally-formed connecting tab received within the lateral opening and bent over the internal shoulder, thereby precluding axial withdrawal of the insert in one direction away from the body, a brush lead, a quick-connection electrical terminal on one end of the lead, the terminal being slidably received over the tab to make electrical connection to the insert, the connection being disposed substantially within the lateral opening, thereby tending to protect against dirt and contaminants, the brush insert having a longitudinal passageway formed therein, a brush slidably received in the passageway and extending beyond one end of the insert, a shunt cap over the other end of the insert, a shunt between the shunt cap and the brush, an externally-threaded brush cap received within the internally-threaded outer end of the body, the brush cap having an internal blind axial bore formed therein, and a conical biasing spring between the brush cap and the shunt cap, the conical spring having an enlarged end coil portion seated in the blind axial bore of the brush cap, and further having a center portion bearing against the shunt cap, thereby tending to minimize turning movement of the shunt cap as the brush cap is threadably received within the body.

4,375,041

TERMINAL SUBSTRATE FOR A QUARTZ VIBRATING DEVICE

Kimio Aizawa, Nara, and Takashi Nagata, Ikeda, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Continuation-in-part of Ser. No. 99,725, Dec. 4, 1979, abandoned. This application Feb. 9, 1982, Ser. No. 347,270
Claims priority, application Japan, Dec. 6, 1978, 53-151515
Int. Cl.³ H01L *41/08*
U.S. Cl. 310—348 **2 Claims**



1. A quartz vibrating device comprising:

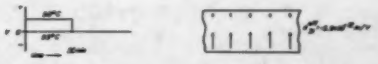
a terminal substrate having an electrically insulating substrate member having a through-hole therethrough, and a pair of conductors attached on one surface thereof in spaced relation to each other, a quartz vibrating element having a quartz crystal element having a pair of opposed main electrodes attached on opposite major surfaces thereof, and a pair of lead electrodes electrically connected to the respective ones of said pair of main electrodes, said lead electrodes being positioned in positions other than opposed to each other on said quartz crystal element; and the ratio between said through-hole area to said electrode area being from 0.5 to 0.8, said quartz vibrating element being mounted and closely contacted with on said terminal substrate with one of said main electrodes facing said through-hole in said terminal substrate, and said pair of lead electrodes being conductively fixed to the respective pair of conductors on said terminal substate, the connections of said lead electrodes and said conductors constituting the only support for said quartz vibrating element on said terminal substrate, whereby said terminal substrate and said quartz vibrating element are integrally connected, and the range of the fine-frequency adjustment by using said through-hole with the evaporation being from zero to 0.8 percent for the frequency before said evaporation.

4,375,042

TEMPERATURE GRADIENT METHOD OF NONUNIFORMLY POLING A BODY OF POLYMERIC PIEZOELECTRIC MATERIAL AND NOVEL FLEXURE ELEMENTS PRODUCED THEREBY

Michael A. Marcus, Fairport, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Nov. 24, 1980, Ser. No. 209,800
Int. Cl.³ H01L *41/22*
U.S. Cl. 310—357 **12 Claims**



1. A method of nonuniformly poling a body of polymeric piezoelectric material, comprising the steps of:

establishing a temperature gradient of greater than about 10° C. and less than about 100° C., the lower temperature being greater than the glass transition temperature of the material and the higher temperature being less than the

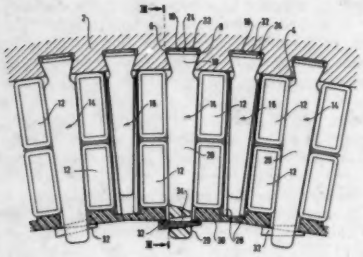
melting point of the material, across the thickness of the body from one surface to another to thereby create a colder surface and a warmer surface; and applying an electric field across the thickness of the body in an amount and for a time sufficient to polarize a portion of the body near said colder surface more strongly than a portion of the body near said warmer surface.

4,375,043

SYSTEM FOR FIXING STATOR WINDING BARS OF A DYNAMO-ELECTRIC ROTATING MACHINE

Gillet Roger, Belfort, France, assignor to Alsthom-Atlantique and Electricite de France, both of Paris, France

Filed Aug. 6, 1981, Ser. No. 290,636
Claims priority, application France, Aug. 7, 1980, 80 17445
Int. Cl.³ H02K 3/47
U.S. Cl. 310—258 **4 Claims**



1. A fixing system for fixing stator winding bars of a dynamo-electric rotating machine having a rotor and a stator, and said stator having a magnetic circuit with an inner surface that is generally cylindrical about the axis of rotation of the rotor, said system serving to fix said bars in the gap between the rotor and the stator magnetic circuit, said bars extending in a "longitudinal" direction parallel to the axis of rotation of the rotor, and being fixed by being pressed against said inner surface of the stator magnetic circuit; said fixing system comprising:

non-metal fixing teeth which are generally prismatic with longitudinal generator lines, said teeth each having a foot fixed to the stator magnetic circuit and a body which protrudes radially inwards from the inner surface of said magnetic circuit, said teeth being spaced out angularly all around said inner surface;

tangential wedges wedging the winding bars between the bodies of the angularly adjacent teeth; and

radial wedges to prevent radial movement of said winding bars relative to the bodies of said teeth by pressing said bars against the inner surface of the stator magnetic circuit;

the improvement wherein the angularly adjacent fixing teeth are alternately long and short with only the long teeth having heads that protrude radially inwards beyond said winding bars;

said tangential wedges of the bars being radially driven outwards and each being inserted between winding bars and the side of one tooth to clamp each of said bars between a tangential wedge and the side of the other tooth;

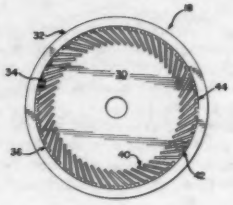
said radial wedges being parallel to said bars having plates fixed to the heads of only the long teeth, which plates extend tangentially between said long tooth heads and pressing radially outwards against the surfaces of said winding bars disposed between said long teeth.

4,375,044

LOW THERMAL STRESS ELECTRODE

Eric M. Ek, Tucson, Ariz., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Mar. 23, 1981, Ser. No. 246,785
Int. Cl.³ H01J 25/34, 23/02
U.S. Cl. 315—5.38 **9 Claims**



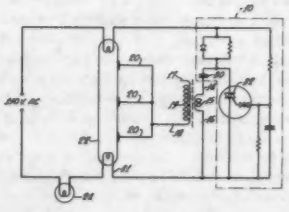
1. A traveling wave tube having means for supplying a beam to one end of the tube and a collector which receives said beam at an opposite end of said tube said collector comprising a metal electrode having a ceramic insulator secured to the periphery thereof and stress-relief means for said electrode including a plurality of spaced substantially planar primary slots extending from the periphery of said metal electrode, with planes offset from the center of said metal electrode, and secondary slots extending from at least one edge of said primary slots.

4,375,045

STARTING TRANSFORMER FOR GAS LAMPS WITH OPEN SECONDARY

Marvin G. Yim, 27305 Rainbow Ridge Rd., Palos Verdes Peninsula, Calif. 90274

Filed Sep. 29, 1981, Ser. No. 306,725
Int. Cl.³ H05B 37/02
U.S. Cl. 315—209 R **1 Claim**



1. A starting apparatus for an A-C line operated gas lamp comprising:

A transformer having a high voltage secondary and a low voltage primary winding placed about the outer circumference of said secondary winding;

a proximity electrode;

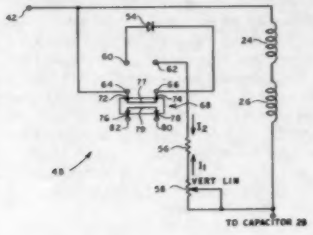
means for connecting one end of said secondary winding to said proximity electrode; and

means for insulating the other end of said secondary winding from both sides of the A-C line.

4,375,046
NETWORK AND METHOD FOR CORRECTING VERTICAL NON-LINEARITY AND MIS-CONVERGENCE IN A TELEVISION PROJECTION SYSTEM

Stanley E. Lehnert, Addison, Ill., assignor to Zenith Radio Corporation, Glenview, Ill.

Filed Mar. 16, 1981, Ser. No. 244,369
Int. Cl.³ H01J 29/70, 29/76
U.S. Cl. 315—368 **10 Claims**



1. For use with a color television projection system having three CRTs and three corresponding vertical deflection yokes, a method of correcting for vertical non-linearity and mis-convergence in the system's projected image, comprising:

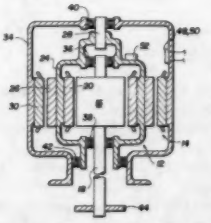
adjusting the height of the projected image such that one end thereof is properly converged at a desired vertical height, and the opposed end thereof is stretched beyond a desired vertical size;

reducing the current in the deflection yoke of each CRT which develops a portion of the vertically stretched image such that the stretched portion of the image is compressed to the desired vertical height and the electron beams of the three CRTs are vertically converged.

4,375,047
TORQUE COMPENSATED ELECTRICAL MOTOR

Virgil W. Nelson, and William L. Carlson, Jr., both of St. Cloud, Minn., assignors to General Signal Corporation, Stamford, Conn.

Filed Jul. 23, 1981, Ser. No. 286,298
Int. Cl.³ H02P 5/52
U.S. Cl. 318—48 **17 Claims**



1. A torque compensated electric motor comprising:

a housing;

a cage;

a post mounted to and extending interior said housing;

a first bearing interconnecting a first end of said cage and said post so that said cage rotates about said post;

a second bearing interconnecting the exterior of the second end of said cage and the interior of said housing;

a first stator mounted to the interior of said cage;

an output shaft extending from said housing and said second end of said cage and rotatably mounted to the interior of said cage;

a first rotor mounted to said output shaft interior and axially aligned with said first stator;

a second rotor mounted to the exterior of said cage;

a second stator mounted to the interior of said housing concentric to said second rotor;

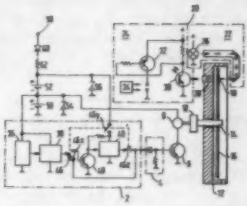
means for measuring the reaction torque experienced by said first stator; and

control means for providing a control signal to said second stator as a function of said measured torque to produce a counter-torque in said second rotor to balance the reaction torque experienced by said first stator.

4,375,048
PROGRAMMABLE TIME SWITCH

Aksel Jespersen, Sonderborg, and Peter A. Eriksen, Nordborg, both of Denmark, assignors to Danfoss A/S, Nordborg, Denmark

Continuation of Ser. No. 53,105, Jun. 28, 1979, abandoned. This application Nov. 14, 1980, Ser. No. 208,808
Claims priority, application Fed. Rep. of Germany, Jul. 11, 1978, 2830368
Int. Cl.³ H02P 5/16
U.S. Cl. 318—484 **1 Claim**



1. A time switch assembly, comprising, an electric stepping motor, a pulse generator, drive means for driving said motor at predetermined selected speeds corresponding to the frequency of said pulse generator, means providing single speed gearing between said motor and said time plate means, said drive means including a fixed frequency oscillator and first and second counters in series, said first counter being matched to said oscillator to have an output frequency related specifically to said speed gearing, said second counter having a divide by seven factor, and switching means between said counters to provide selectable bypassing of said second counter wherein said first counter acting alone drives said time plate through said single speed gearing at one revolution per day and said counters acting together drive said plate at one revolution per week.

4,375,049
STEPPING MOTOR DRIVE CIRCUIT FOR BI-DIRECTIONAL ROTATION

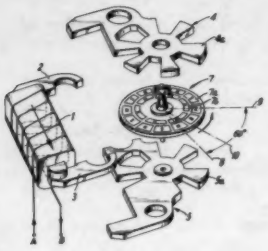
Paul Grand Chavin, Besancon, France, assignor to Timex Corporation, Waterbury, Conn.

Filed Sep. 24, 1980, Ser. No. 190,157
Int. Cl.³ H02K 29/00
U.S. Cl. 318—696 **7 Claims**

1. An improved electrical drive circuit for a reversible stepping motor of the type having a coil and stator providing a magnetic circuit for a magnetized rotor having first poles adapted to cooperate with said magnetic circuit when electrical pulses are supplied from a voltage source, said circuit having means providing pulses of predetermined polarity and frequency to said coil for pre-determined intervals to step the rotor in forward or reverse direction, said rotor having second poles adapted to lock the rotor in stable equilibrium positions

between steps when the coil is not activated, such stable positions being located such that less energy is required to step the rotor forward than in reverse; the improvement in said drive circuit comprising:

a switching circuit adapted to provide a reverse switching cycle comprised of a first pulse portion initiating rotation in a forward direction and a second pulse portion applied



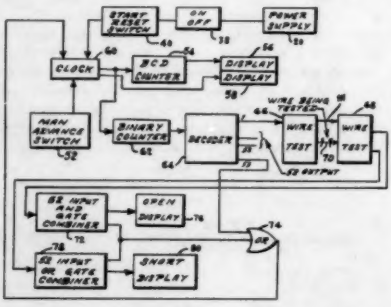
at a predetermined time during rotation so as to cause a reverse electromagnetic torque to reverse rotation and move it in the opposite direction, at least one of said pulse portions comprised of a high frequency pulse train of pulses of the same polarity of those normally used to turn the rotor in the forward direction and of sufficiently high frequency to reduce the current which would otherwise flow through said coil.

4,375,050

PORTABLE AUTOMATIC MULTIPLE TEST SYSTEM FOR MULTI-PAIR CABLES

Ronald C. Helgerson, 4939 SE. 140th, Portland, Oreg. 97236

Filed Aug. 27, 1980, Ser. No. 181,937
Int. Cl.³ G01R *31/02*
U.S. Cl. 324—51 **8 Claims**



1. A portable multi-pair cable tester for automatically and sequentially testing wires of said cable, said tester comprising:

driver means for outputting a controlled sequence of pulses upon receiving electrical power;

overide means for effecting continued sequential testing after said tester determines a short or an open circuit condition in any one of said wires connected to said driver means;

first display means for displaying a number corresponding to a wire pair under test, said first display means including a BCD counter connected to said driver means, a multi-digit display driven by said BCD counter for indicating which of said wire pairs is under test, and a pair of LEDs connected to said driver means for indicating whether a wire under test is a tip or ring;

counting means for counting the controlled sequence of pulses from said driver means, said counting means connected for outputting a plurality of coded signals;

decoding means for decoding the plurality of coded signals and connected for outputting of pulses, said decoding means connected to said counting means and outputting a sequential pulse to each of said wires under test of said multi-pair cable, said decoding means upon completing testing of all wires of said cable outputting a clock stop pulse;

test means for testing wires of said multi-pair cables having connectors on each end of said cable to said test means, said test means including an input wire test circuit having drivers and inverters therein connected between said decoding means and one end of said cable, and an output wire test circuit having gates connected to the opposite end of said cable and to said input wire test circuit;

combining means connected to said output wire test circuit, said combining means includes a first combiner for outputting a pulse in response to a short circuit condition and a second combiner for outputting a pulse in response to an open circuit condition;

second display means for displaying open and short circuit condition connected to said combining means; and

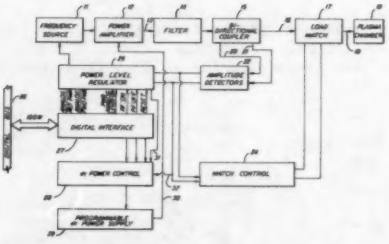
gate means for receiving the clock stop pulse of said decoding means and said combining means, and outputting a stop pulse to said driver means when said tester has determined an open or short circuit condition and when said testing has been completed.

4,375,051

AUTOMATIC IMPEDANCE MATCHING BETWEEN SOURCE AND LOAD

C. Earle Theall, Weston, Conn., assignor to The Perkin-Elmer Corporation, Norwalk, Conn.

Filed Feb. 19, 1981, Ser. No. 235,784
Int. Cl.³ H03H *7/40*
U.S. Cl. 333—17 M **17 Claims**



1. A system for supplying R.F. power to a load, comprising;

R.F. power source means,

load match circuit means connected between said R.F. power source means and the load,

said load match circuit means comprising;

first and second variable capacitors together with an inductance forming a tank circuit and first and second reversible stepping motors connected to said first and second variable capacitors, respectively, for varying the capacitance of each;

bi-directional coupler means connected between said R.F. power source means and said load match circuit means for providing voltage outputs proportional to forward and reflected power;

control circuit means connected to receive said outputs from said bi-directional coupler means proportional to forward and reflected power and connected to said load match circuit means for energizing said first and second motors to vary said first and second capacitors to cause apparent load impedance to automatically match the surge impe-

dance of said transmission line means to reduce reflected power substantially to zero regardless of variations of load impedance,

said control circuit means comprising;

first circuit means connected to said first motor for driving said first motor in a first or second direction,

second circuit means connected to said second motor for driving said second motor in a first or second direction,

first logic circuit means connected to said first and second circuit means for driving said first and second motors only in a direction for reducing the voltage from said bi-directional coupler means proportional to said reflected power,

second logic circuit means connected to said first and second circuit means for periodically selecting one of said first and second motors to be energized,

a pulse generator providing first, second, third and fourth pulses periodically,

said second logic circuit comprising,

a first flip-flop connected to said first and second circuit means,

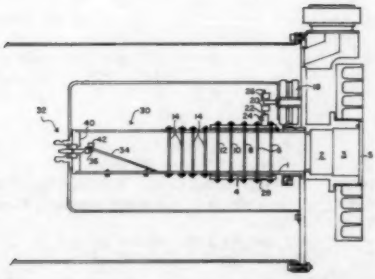
counter means connected between said generator means and said first flip-flop causing said first flip-flop to change states after said fourth pulse has occurred a predetermined number of times for selecting said first or second motors to be energized in accordance with the state of said first flip-flop.

4,375,052

POLARIZATION ROTATABLE ANTENNA FEED

Tore N. Anderson, Brookfield Center, Conn., assignor to Microdyne Corporation, Ocala, Fla.

Filed Jul. 11, 1980, Ser. No. 168,666
Int. Cl.³ H01P 1/165
U.S. Cl. 333—21 A **9 Claims**



1. An antenna feed assembly for selectively rotating an incoming wave in one or another direction about the axis of said feed comprising,

a circular wave guide comprising

an elongated hollow tube having an end for passing electromagnetic radiation,

a first plurality of stationary conductive pins extending across a diametrical dimension of said hollow tube,

a second plurality of conductive pins extending across a diametrical dimension of said hollow tube,

said second plurality of pins being rotatable about the axis of the elongated dimension of said hollow tube,

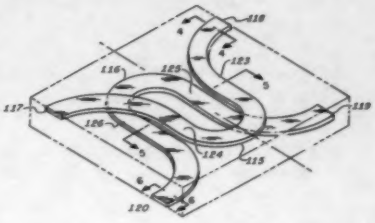
means for rotating said second plurality of pins between two extreme positions lying at equal angles on opposite sides of a plane including said first plurality of pins such that each of said pins of said second plurality of pins lie at equal angles other than zero relative to one another with at least one of said second plurality of pins remote from said first plurality of pins located at ±45° relative to said plane.

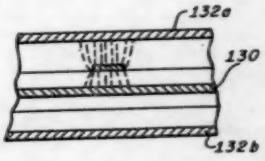
4,375,053

INTERLEVEL STRIPLINE COUPLER

Raymond D. Viola, Oyster Bay, and Gerard L. Hanley, Melville, both of N.Y., assignors to Sperry Corporation, New York, N.Y.

Filed Dec. 29, 1980, Ser. No. 220,227
Int. Cl.³ H01P 5/18
U.S. Cl. 333—116 **7 Claims**





1. An apparatus for coupling signals between levels of multilevel stripline circuits comprising:

first and second ground planes having a region therebetween divided into three sections, a middle section, and two outer sections with first and second boundaries between said middle section and said two outer sections;

a first metallic inner conductor of horseshoe shape positioned at said first boundary, having an arcuate section, an open end, and first and second ports on either side of said open end respectively coupled to first and second metallic strip conductors at said first boundary;

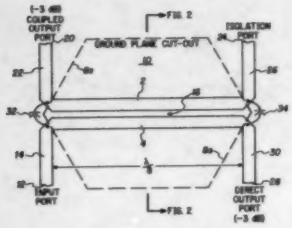
a second metallic inner conductor of horseshoe shape positioned at said second boundary in an energy coupling relationship with said first horseshoe shaped inner conductor, having an arcuate section, an open end, and third and fourth ports on either side of said open end respectively coupled to third and fourth metallic strip conductors at said second boundary, said arcuate section and said open end of said second horseshoe shaped inner conductor respectively facing said open end and said arcuate section of said first horseshoe shaped inner conductor to position said first and third ports and said second and fourth ports with electrical distances therebetween; and

first metallic means positioned substantially equidistant between said first and second ground planes and located in regions external to areas covered by said first and second horseshoe shaped inner conductors for providing common ground planes for strip conductors at said first and second boundaries to establish a first half height asymmetric stripline and a second half height asymmetric stripline.

4,375,054
SUSPENDED SUBSTRATE—3 dB MICROWAVE QUADRATURE COUPLER

Anthony M. Pavio, Plano, Tex., assignor to Rockwell International Corporation, El Segundo, Calif.

Filed Feb. 4, 1981, Ser. No. 231,570
Int. Cl.³ H01P 5/18
U.S. Cl. 333—116 2 Claims



1. A compact, reduced length microwave 90° quadrature −3 dB coupler comprising:

a dielectric substrate;

a ground plane on the bottom of said substrate;

microstrip conductor ports on the top of said substrate and connected to a pair of spaced parallel coplanar conductor lines separated by a coupling gap having a length of one eighth wavelength and juxtaposed a cut-out region of said ground plane therebelow such that said coplanar conductor lines are balanced and coupled to each other, said substrate being suspended within a mounting case such that the coplanar conductor lines remain balanced to each other without ground plane coupling to said mounting case and said coupling gap and the width of the conductor lines being selected so that the even mode impedance is very large and much greater than the characteristic impedance and so that the odd mode impedance is substantially equal to the characteristic impedance; and

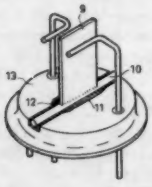
a pair of capacitors coupling the conductor lines at the ends thereof, said capacitors each providing a reactance substantially equal to the characteristic impedance,

whereby said coupling gap can be made relatively wide and said conductor lines can be made substantially less than one quarter wavelength in length.

4,375,055
DEVICE FOR ARTICULATING A MOVING BLADE PIVOTING ON ITS BASE AND A SWITCH WHICH COMPRISES SUCH A DEVICE

Gerard Holvoet, and Jacques Legrand, both of Quai Leon Blum, France, assignors to Socapex, France

Filed Mar. 18, 1981, Ser. No. 245,173
Claims priority, application France, Mar. 26, 1980, 80 06688
Int. Cl.³ H01H 1/08
U.S. Cl. 335—56 11 Claims

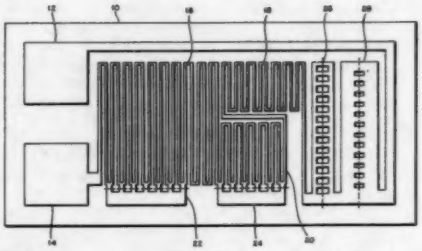


1. A device for the articulation of a moving blade, whose plane pivots in an angular manner on its base, wherein the moving blade is fixed to a float floating on a liquid contained in a cavity in which it is held by capillarity and which is made in the base, the nature of the float material and its dimensions being such that the hydrostatic buoyancy which is exerted by the liquid is equal to or exceeds the weight of the mobile assembly constituted by the float, the moving blade and the liquid film wetting the said blade, the equilibrium of the force ensuring that the articulation operates independently of its position in space.

4,375,056
THIN FILM RESISTANCE THERMOMETER DEVICE WITH A PREDETERMINED TEMPERATURE COEFFICENT OF RESISTANCE AND ITS METHOD OF MANUFACTURE

Ronald D. Baxter, and Paul J. Freud, both of Furlong, Pa., assignors to Leeds & Northrup Company, North Wales, Pa.

Filed Feb. 29, 1980, Ser. No. 126,068
Int. Cl.³ H01C 3/04
U.S. Cl. 338—25 5 Claims



1. A resistance thermometer element comprising:

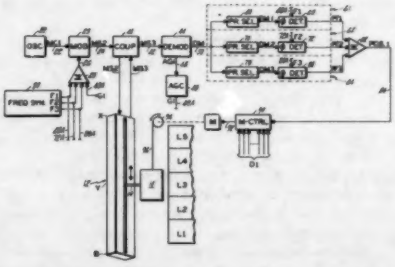
an electrically insulating substrate; and

a thin platinum film deposited on said substrate in a pattern to produce a desired ice point resistance with the film being of a thickness between 0.05 and 0.8 microns purity and perfection such that its bulk TCR is substantially above the desired TCR.

4,375,057
POSITION SENSOR

Andrew P. Weise, Hebron, and George R. Wisner, Deep River, both of Conn., assignors to Otis Elevator Company, Farmington, Conn.

Filed Dec. 10, 1980, Ser. No. 215,205
Int. Cl.³ B66B 3/02; G01S 1/24
U.S. Cl. 340—21 3 Claims



1. Apparatus for sensing the distance to an object, characterized by:

a microwave signal source,

a contained medium for propagating microwave signals along its length, said medium including a reflector member along the length of the medium for reflecting the signals back, and

detection means responsive to input signals for providing an output signal which reflects the phase difference between said input signal and a reference signal,

said signal from said microwave source being applied to said medium, said input signal being a signal reflected back from the reflector member and said reference signal being said microwave signal, the object being connected to said reflector member, and

said microwave source comprising means for providing a microwave signal comprising at least first and second modulated signals, the modulating frequency of one of said signals being such that its period, for one cycle, equals the round trip transmission time for the carrier for the maximum distance to be measured and the modulation frequency of the second frequency being higher than said first frequency,

said detection means comprising means responsive to an input signal comprising said second signal for providing a demodulation signal reflecting the modulated portion, if any, of said input signal, means for providing a first distance indicating signal reflecting the phase difference between said demodulation signal and a first reference signal having the same frequency as said first modulation signal, means for providing a second distance indicating signal reflecting the phase difference between said demodulation signal and a reference signal having the same frequency as said second modulation signal, and for providing a signal reflecting the sum of the distances associated with said distance signals.

4,375,058

DEVICE FOR READING A PRINTED CODE AND FOR CONVERTING THIS CODE INTO AN AUDIO SIGNAL

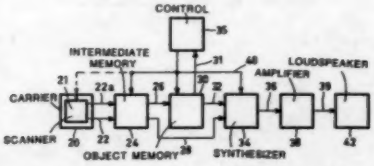
Herman Bouma; Dominicus G. Bouwhuis; Paulus M. Boers, and Josephus C. Jacobs, all of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Jun. 6, 1980, Ser. No. 157,133

Claims priority, application Netherlands, Jun. 7, 1979, 7904469

Int. Cl.³ G06K *7/10*; G10L *1/00*

U.S. Cl. 340—146.3 Z **8 Claims**



1. A device for generating audio signals on the basis of printed code representations that are present on a visually selectable zone of the surface of a carrier, said device comprising:

(a) first means, suitable for manipulation, for the selective and optical scanning of said zone and for deriving code signals from the code representations present in said zone;

(b) second means, including an intermediate memory having a data input which is connected to an output of the first means, for receiving and processing said code signals and for developing reproduction control signals therefrom;

(c) within said second means a synchronization mechanism for deriving synchronization signals from the signals of the code representations and for controlling the storage of code signals in the intermediate memory by means of these synchronization signals;

(d) clock means within said second means for controlling the reading of code signal information stored in the intermediate memory and for presenting these code signals on an output of the second means,

(e) third means having an input connected to an output of the second means for receiving therefrom control signals, for the sequential actuation of acoustic generator means included in said third means.

4,375,059

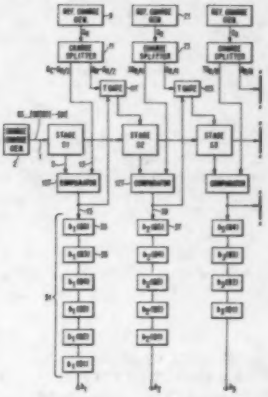
FAST CHARGE TRANSFER ANALOG-TO-DIGITAL CONVERTER

Eugene S. Schlig, Somers, N.Y., assignor to IBM Corporation, Armonk, N.Y.

Filed Apr. 25, 1980, Ser. No. 143,704

Int. Cl.³ H03K *13/08*

U.S. Cl. 340—347 AD **13 Claims**



1. An analog-to-digital converter for generating a digital word having a plurality of binary bits defining the magnitude of a charge packet, comprising:

a pipeline register having an input end for receiving a serial stream of source charge packets and having serially connected register electrodes for serially passing the charge packets to an output end; and

a plurality of digitizing stages arranged at serial locations along said pipeline register, each stage operatively associated with at least one particular register electrode of the pipeline register for comparing a source charge stored under the electrode to a first fixed reference charge for the electrode and generating a binary bit in accordance with the result of the comparison, each stage having transfer means for summing the compared source charge and a second fixed reference charge for the electrode if a particular binary bit is generated for the electrode and for storing the charge sum under a successive register electrode of the pipeline register and for transferring the compared source charge alone to said successive register electrode if another particular binary bit is generated.

4,375,060

ELECTRONIC APPARATUS HAVING SPECIAL KEY

Sakae Horyu, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed May 20, 1980, Ser. No. 151,700

Claims priority, application Japan, May 26, 1979, 54-64583

Int. Cl.³ G06F *3/02*; H04L *15/00*

U.S. Cl. 340—365 R **5 Claims**

1. An electronic apparatus comprising:

a plurality of data input keys for entering data;

storage means for storing data;

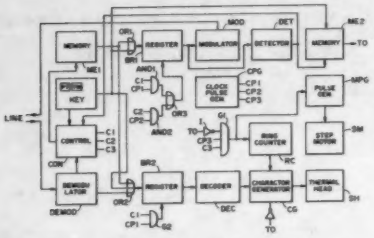
transmitting means for transmitting directly the data entered by way of said data input keys, and for transmitting from said storage means the data stored therein;

recording means for recording directly the data entered by way of said data input keys, and for recording from said storage means the data stored therein;

a first selection key for entering a selection signal;

holding means for storing said selection signal;

means responsive to said selection signal stored in said hold-



ing means for activating said transmitting means and for inhibiting activation of said recording means, such that in response to said stored selection signal said transmitting means transmits said data stored in said storage means but said recording means does not record said data from said storage means; and

reset means for resetting said holding means to a state in which said selection signal is not being stored when the transmission of the data from said storage means is completed.

4,375,061

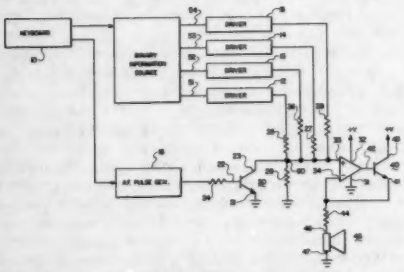
DIGITALLY DRIVEN AUDIO EFFECTS GENERATOR

Daniel J. Shoff, Torrance, Calif., assignor to Mattel, Inc., Hawthorne, Calif.

Filed Dec. 29, 1980, Ser. No. 220,403

Int. Cl.³ G08B *27/00*

U.S. Cl. 340—384 E **10 Claims**



1. A digitally driven audio effects generator comprising:

a source of binary information, providing a binary encoded output signal indicative of a selected amplitude characteristic;

a source of operating potential;

a source of audio frequency signal;

digital to analog conversion means having means for receiving digitally encoded information and means for producing an analog output signal having an amplitude corresponding to said digitally encoded information;

means coupling said source of binary information to said digital to analog conversion means; and

switching means, coupled to said source of audio frequency signal and to said digital to analog conversion means, interrupting said output signal at a rate determined by the frequency of said audio frequency signal.

4,375,062

ASPIRATOR FOR AN INK JET PRINTER

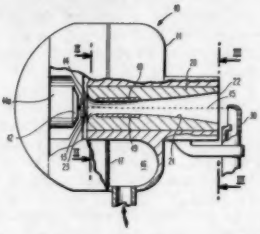
Gary V. Sturm, Lexington, Ky., assignor to International Business Machines Corporation, Armonk, N.Y.

PCT No. PCT/US81/00722, § 371 Date May 29, 1981, § 102(e) Date May 29, 1981

PCT Filed May 29, 1981, Ser. No. 280,953

Int. Cl.³ G01D *15/18*

U.S. Cl. 346—75 **4 Claims**



1. An aspirator (10) for a continuous stream ink jet printer in which air and ink pass through the aspirator substantially coaxially and at a velocity relative to one another to substantially inhibit the necessity for aerodynamic ink to air velocity correction, said aspirator (10) being of the type comprising a tunnel (20) having an air and ink stream inlet (23) and outlet (22), and a bore (21) in said tunnel interconnecting said inlet (23) and outlet (24); said aspirator being characterized in that:

said bore (21) increases in cross-sectional area from said inlet (23) to said outlet (22), the axial area gradient being inversely proportional to the intended velocity of air through the tunnel.

4,375,063

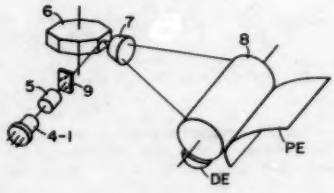
RECORDING APPARATUS WITH LASER BEAM

Takashi Kitamura, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 15, 1981, Ser. No. 225,344

Int. Cl.³ G01D *15/04, 15/20*

U.S. Cl. 346—108 **13 Claims**



9. An apparatus for recording by use of a laser comprising:

semiconductor laser element means for generating a laser beam the wavelength of which varies in accordance with variation of temperature to which said laser element means is exposed;

photosensitive means positioned to be exposed to the laser beam generated by said semiconductor laser element means and characterized in that its photosensitivity is reduced as the wavelength of the laser beam increases within a range of wavelength variation; and

optical filter means disposed in the path of the laser beam between said semiconductor laser element means and said

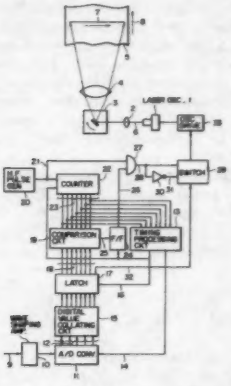
photosensitive means and having such characteristics that the quantity of laser beam transmitted therethrough increases as the wavelength of the laser beam increases within the range of wavelength variation.

4,375,064

LASER RECORDER

Yuji Ohara, Asaka, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Apr. 22, 1981, Ser. No. 256,467
Claims priority, application Japan, Apr. 24, 1980, 54/607
Int. Cl.³ G01D *15/14*
U.S. Cl. 346—108 **5 Claims**



1. A laser recorder comprising means for sampling an input signal with a sampling pulse; means for providing a predetermined number of pulses during a predetermined sampling period, the number of said pulses being controlled according to a level of the sampled input signal, a positive pulse being provided for a low exposure level and a negative pulse being provided for a high exposure level of said input signal; and means for binary modulating a light beam in accordance with said positive pulses and said negative pulses to record an image having half-tones.

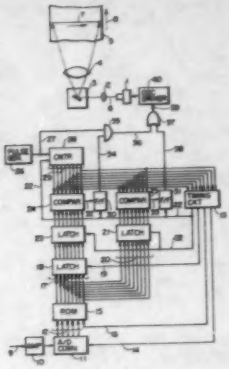
4,375,065

LASER RECORDER

Yuji Ohara, Asaka, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Apr. 29, 1981, Ser. No. 258,692
Claims priority, application Japan, Apr. 30, 1980, 55-57267
Int. Cl.³ G01D *15/4*
U.S. Cl. 346—108 **7 Claims**

1. A laser recorder comprising: means for sampling an input signal at a predetermined sampling time period, means for producing a first signal in response to the sampled input signal for controlling a number of pulses to be outputted during said sampling period in accordance with a level of said sampled input signal; means for producing a second signal for controlling the width of pulses to be outputted during said sampling period according to said level of said sampled input signal; means for combining said first and second signals to produce a



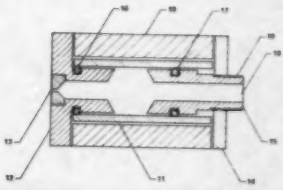
third signal; and means for modulating a light beam source in accordance with said third signal.

4,375,066

IJP DROP MODULATOR

Richard D. Herd, Duncanville, Tex., assignor to Recognition Equipment Incorporated, Dallas, Tex.

Filed Mar. 10, 1981, Ser. No. 242,213
Int. Cl.³ G01D *15/18*
U.S. Cl. 346—140 R **6 Claims**



1. An adjustable frequency ink jet printer modulator comprising; a piezoelectric crystal, a front plate and a rear plate, said crystal, front plate and rear plate forming an ink cavity, and an adjustable plunger extending through said rear plate for varying the size of said ink cavity.

4,375,067

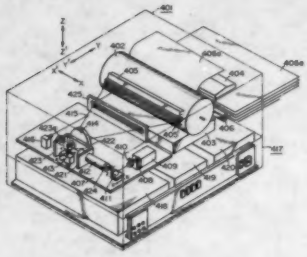
SEMICONDUCTOR LASER DEVICE HAVING A STABILIZED OUTPUT BEAM

Takashi Kitamura, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed May 6, 1980, Ser. No. 147,174
Claims priority, application Japan, May 8, 1979, 54-56794; Jan. 23, 1980, 55-6685; Jan. 23, 1980, 55-6686
Int. Cl.³ G01D *15/14*; H01S *3/10*
U.S. Cl. 346—160 **32 Claims**

28. An image recording apparatus comprising:
a semiconductor laser element;
a photosensitive medium receiving the output light of said laser element;
means for forming an electrostatic latent image on said photosensitive medium in response to said output light;
detector means for detecting the intensity of said output light;
an optical filter for compensating for a variation in sensitivity of said photosensitive medium caused by an output

wavelength shift based on a temperature variation of said laser element, said optical filter having a transmission factor distribution corresponding to the spectrum sensitivity distribution of said photosensitive medium; and



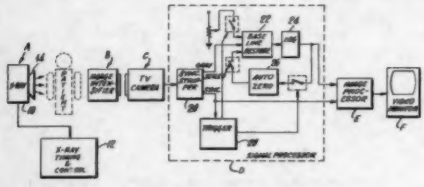
an adjusting mechanism capable of arbitrarily adjusting an angle of said optical filter with respect to the direction of emergence of said output light from said laser element.

4,375,068

RADIOGRAPHIC APPARATUS AND METHOD WITH LOGARITHMIC VIDEO COMPRESSION

Thomas R. McBride, Newbury, Ohio, assignor to Technicare Corporation, Solon, Ohio

Filed Apr. 21, 1980, Ser. No. 142,499
Int. Cl.³ H04N 7/18
U.S. Cl. 358—111 13 Claims



1. A radiographic apparatus comprising:

(a) a radiation source for irradiating an examined object with penetrating radiation, such as x-radiation;

(b) means for converting penetrating radiation into a video signal, said penetrating radiation to video signal converting means being disposed to receive from said radiation source penetrating radiation which has traversed the examined object, said video signal having a gray scale portion and a synchronization portion;

(c) logarithmic transfer means for logarithmically compressing the gray scale portion of the video signal, said logarithmic transfer means being operatively connected to said radiation to video signal converting means, the logarithmic transfer means producing an output signal that includes a logarithmically compressed video signal;

(d) base line restoring means for combining an offset signal with the gray scale portion of the video signal, said base line restoring means being operatively connected with said radiation to video signal converting means; and

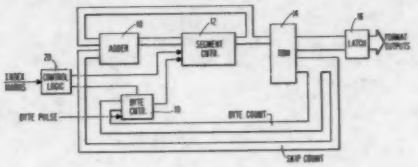
(e) an automatic zero circuit supplied with the output signal of the logarithmic transfer means and coupled to the base line restoring means, said automatic zero circuit generating the offset signal combined with the gray scale portion of the video signal.

4,375,069

PROGRAMMABLE FORMAT SEQUENCER FOR DISK DRIVE

Eric J. Halvorsen, East Layton, and David T. Cornaby, Roy, both of Utah, assignors to Iomega Corporation, Ogden, Utah

Filed Apr. 24, 1981, Ser. No. 257,469
Int. Cl.³ G11B 5/09, 15/18
U.S. Cl. 360—49 6 Claims



1. A programmable format sequencer for providing control signals to disk drive apparatus, said signals being output in response to a determination that particular portions of a disk are juxtaposed to a read/write head at a given time, said format sequencer comprising:

means for counting bytes of data recorded on said disk;

means for comparing said count with predetermined numbers of bytes defined to be within a given track segment on said disk;

means for outputting appropriate control signals for each said segment; and

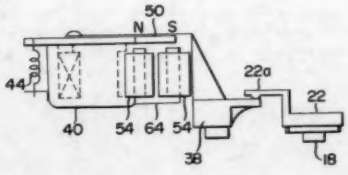
means for sequentially supplying byte counts corresponding to each said segment to said comparator for use in each said comparison step.

4,375,070

MAGNETIC HEAD SOFT LOADING AND UNLOADING DEVICE

Shin Isozaki; Masaru Sasaki, and Kanji Sakurai, all of Kamakura, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 30, 1980, Ser. No. 192,596
Claims priority, application Japan, Oct. 1, 1979, 54/126621
Int. Cl.³ G11B 21/12, 5/54
U.S. Cl. 360—75 11 Claims



1. A magnetic head soft loading and unloading device for use with an interchangeable two-sided magnetic recording medium comprising: a carriage movable along both sides of said magnetic recording medium; a pair of magnetic heads disposed on said carriage; a turnable first arm, at least one of said pair of magnetic heads being disposed on said first arm; said first arm being turnable to move said at least one of said pair of heads toward said magnetic recording medium to load said magnetic recording medium with said at least one of said pair of magnetic heads and moving said at least one of said pair of magnetic heads away from said magnetic recording medium to unload said at least one of said pair of magnetic heads from said magnetic recording medium; driving means, including an electromagnetic device for turning said first arm when said magnetic recording medium is loaded with said at least one of said

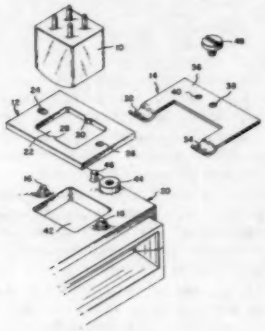
pair of magnetic heads and when said at least one of said pair of magnetic heads is unloaded from said magnetic recording medium, said electromagnet device including an armature, a return spring operatively coupled to said armature for biasing said at least one of said pair of magnetic heads away from said magnetic recording medium, and an exciting winding disposed around said electromagnet device; a speed sensor for sensing a speed of movement of said first arm and producing a first signal indicative of said speed of movement; and a driving circuit means, responsive to said first signal, for controlling current flow through said exciting winding so as to control a speed at which said electromagnet device as energized by said current turns said first arm and thereby controls a speed at which said at least one of said pair of magnetic heads is moved toward or away from said magnetic recording medium.

4,375,071

MOUNTING MEANS FOR MAGNETIC READ HEAD

Crowley Daniel J., Harrisburg, and Jon D. Stine, Elizabethtown, both of Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Filed Oct. 20, 1980, Ser. No. 198,750
Int. Cl.³ G11B *5/48, 21/16*
U.S. Cl. 360—104 **4 Claims**



1. A means for mounting a magnetic read head in a card reader or the like comprising:

an annular plate secured to and extending peripherally from said magnetic read head, said plate having at least two bores in opposed spaced relationship on opposite sides of said plate;

a pair of mounting studs integral with a housing of said card reader, said studs being aligned to be received in the respective bores of said plate and having a length greater than the thickness of said plate; and

a spring member having a pair of parallel spaced arms engaging said plate on opposite sides of said magnetic read head overlying said studs whereby said magnetic read head is mounted on said studs for relative movement therealong allowing limited float.

4,375,072

SELF-CALIBRATING OVERCURRENT DETECTOR

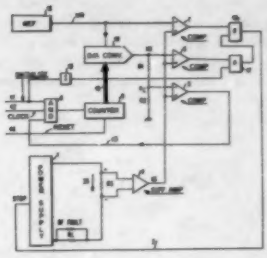
Anthony J. Rice, La Gaude, France, assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 30, 1981, Ser. No. 248,742
Claims priority, application France, Apr. 10, 1980, 80 08341
Int. Cl.³ H02H *3/08*
U.S. Cl. 361—87 **10 Claims**

1. Self-calibrating overcurrent detector characterized in that it includes:

means for generating a first voltage (VS) which is proportional to the current whose fault value is to be detected,

means which are active during an initialization cycle for generating a second increasing voltage (VC) which, at the end of the initialization cycle, is equal to the first voltage and for deriving from said second voltage a threshold voltage (VD) such that VS=kVC, k being a numerical factor higher than 1, and



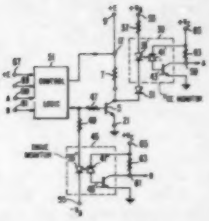
first means for comparing the threshold voltage with the first voltage in order to provide a fault detection indication after the initialization cycle.

4,375,073

DUAL-MONITORING PROTECTION CIRCUIT FOR SWITCHING TRANSISTOR

Miroslav Glogolja, Somerville, and Arthur A. Baumgarten, Morris Plains, both of N.J., assignors to Reliance Electric Company, Cleveland, Ohio

Filed Jun. 16, 1980, Ser. No. 159,835
Int. Cl.³ H02H *3/38*
U.S. Cl. 361—91 **17 Claims**



1. Apparatus for monitoring a fault in a main current conducting path of a transistor activated into saturation between first and second opposite electrodes of the path in response to a drive current applied to a control electrode of the transistor, the fault occurring with the drive current being applied to the control electrode while the transistor is not in saturation, comprising first sensing means for detecting that the transistor is and is not activated to saturation, second sensing means for detecting the presence of drive current to the control electrode, and means responsive to the first and second sensing means for indicating a fault in response to the first sensing means detecting that the transistor is not activated to saturation while the second sensing means detects the presence of the drive current.

4,375,074

DUAL-MODE TRANSISTOR TURN-OFF

Miroslav Glogolja, Somerville, N.J., assignor to Reliance Electric Company, Cleveland, Ohio

Filed Aug. 8, 1980, Ser. No. 176,358
Int. Cl.³ H02H *9/04*
U.S. Cl. 361—91 **19 Claims**

1. In a protection circuit for a switching transistor having collector, emitter and base electrodes, said base electrode

being responsive to a drive current signal for selectively turning on said transistor, a method for turning off said transistor from conduction of a fault current of substantially higher magnitude than that of the maximum current magnitude determined by the reverse bias safe operating area specification for said transistor, the method comprising the steps of:

(a) sensing the voltage between the collector and emitter electrodes of said transistor when turned on;

(b) initiating turn-off of said transistor by removing the drive current to said base electrode while substantially concurrently connecting a relatively low impedance current conduction path between said base and emitter electrodes whenever the level of said sensed voltage equals or exceeds a predetermined level indicative of a fault condition; and

(c) removing the drive current to said base electrode while substantially concurrently connecting a predetermined level of reverse bias voltage to said base electrode, for selectively turning off said transistor from a normal conducting state, as indicated by said sensed voltage being below said predetermined level.

4,375,075

TANTALUM CAPACITORS WITH INTERNAL CURRENT-LIMITING MEANS

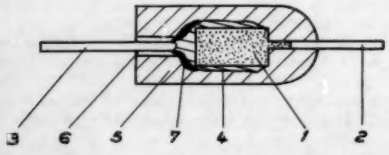
Balint Escher; Dominique Prince, and Rene Romanet, all of Conflans Sainte Honorine, France, assignors to Lignes Telegraphiques et Telephoniques, Paris, France

Filed Mar. 27, 1980, Ser. No. 134,679

Claims priority, application France, Apr. 2, 1979, 79 08275

Int. Cl.³ H01G 9/18

U.S. Cl. 361—433 **5 Claims**



1. A solid-electrolyte tantalum capacitor comprising a frittered tantalum powder anode oxidized on the surface and impregnated and coated with manganese dioxide, conducting layers deposited on said dioxide, an anode lead in contact with said frittered tantalum, a soldered cathode lead soldered to said conducting layers and a protection provided by a casing or moulded coating, said protection being provided with an opening communicating to the outside of said casing close to the soldered cathode lead, for evacuating molten solder.

4,375,076

CYCLICALLY CONTROLLED ELECTRICAL EQUIPMENT HAVING A CONTROL ANGLE WHICH IS VARIABLE OVER A PORTION OF THE OPERATING CYCLE

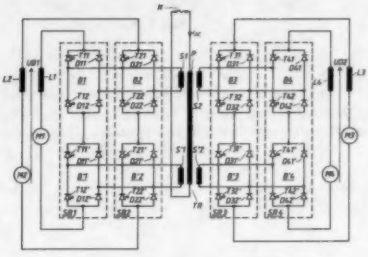
Harry Magnusson, Vasteras; Göte Tallbäck, Helsingborg, and Ake Wennberg, Vasteras, all of Sweden, assignors to ASEA Aktiebolag, Vasteras, Sweden

Filed Apr. 9, 1980, Ser. No. 138,802

Claims priority, application Sweden, Apr. 9, 1979, 7903123

Int. Cl.³ H02M 7/155

U.S. Cl. 363—68 **6 Claims**



1. Electrical converter equipment for the supply of electrical current to at least one d.c. load comprising: a controllable converter connected to an alternating voltage source, said converter having a by-pass path for the direct current, control means for controlling the direct voltage of the converter by influencing the control angle of the converter, the control means operating cyclically such that each operating cycle comprises a plurality of half-periods of the alternating voltage of the alternating voltage source and that the converter within at least part of the control range operates with different control angles during the different half-periods of a cycle, wherein each of said cycles comprises n periods of the alternating voltage of the source, n being an odd number not less than three, said control means, during two of the half-periods of the cycle controlling the converter with a control angle which is variable for influencing the direct voltage of the converter and, during each of the other half periods of the cycle, controlling the converter with a fixed control angle, and the half-periods during which the converter is controlled with said variable control angle being time equidistant.

4,375,077

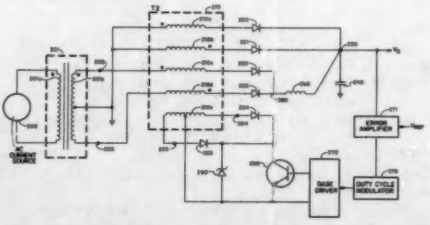
POWER SUPPLY REGULATOR CIRCUIT EMPLOYING A TRANSFORMER HAVING A CONTROL WINDING

James B. Williams, Framingham, Mass., assignor to Data General Corporation, Westboro, Mass.

Filed Feb. 26, 1981, Ser. No. 238,530

Int. Cl.³ H02P 13/12

U.S. Cl. 363—91 **3 Claims**



1. Electrical apparatus for voltage regulation, said apparatus comprising:

a transformer, said transformer having at least one primary winding conductively connected between a voltage source and the output of said apparatus, at least one secondary winding conductively connected between ground and the output of said apparatus, and at least one control winding magnetically coupled to said at least one primary winding and said at least one secondary winding;

means for rectifying the outputs of at least said at least one primary winding and said at least one secondary winding; and

control means connected to said at least one control winding whereby the output of said apparatus can be modified.

4,375,078

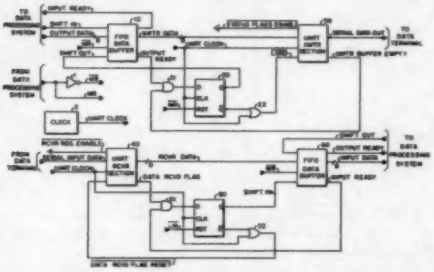
DATA TRANSFER CONTROL CIRCUIT

Donald E. Thoma, Mt. Prospect, Ill., assignor to GTE Automatic Electric Labs Inc., Northlake, Ill.

Filed Mar. 26, 1981, Ser. No. 247,962

Int. Cl.³ G06F *3/00*

U.S. Cl. 364—200 **7 Claims**



1. A data transfer control circuit, including a transmitting and a receiving section, for transmitting data words from a data processing system to a data terminal and for receiving data words from said data terminal for transmission to said data processing system, said data transfer control circuit connected between said data processing system and said data terminal, said data transfer control circuit comprising:

a clock for providing periodic pulses of a predetermined frequency;

said transmitting section comprising:

a first buffer connected to said data processing system and operated to store said data words transmitted from said data processing system;

converter means for converting parallel data to serial data, said converter means connected to said data terminal and to said first buffer;

first gating means connected to said first buffer and to said converter means, and operated in response to said first buffer to produce a first signal;

latching means connected to said clock, to said first gating means and to said first buffer, operated in response to said first signal to produce a second signal and a third signal;

said first buffer operated in response to said second signal to transfer a data word to said converter means;

second gating means connected between said latching means and said converter means and connected to said clock, and operated in response to said third signal to produce a fourth signal; and

said converter means operated in response to said fourth signal to store said transferred data word from said first buffer temporarily, to convert said data word to serial data and to transmit said data word to said data terminal;

said receiving section comprising:

second buffer for storing data, connected to said data processing system;

said converter means for converting serial data to parallel data and temporarily storing a data word for transmission, and said converter means further connected to said data terminal and to said second buffer;

third gating means connected to said second buffer and to said converter means and operated in response to said converter means to produce a fifth signal;

flip-flop means connected to said clock, to said third gating means and to said second buffer, and operated in response to said fifth signal to produce a sixth signal and a seventh signal;

fourth gating means connected between said flip-flop means and said converter means and connected to said clock, and operated in response to said seventh signal and said clock to produce an eight signal;

said converter means operated in response to said eight signal to transfer said data word to said second buffer for storage; and

said second buffer operated in response to said sixth signal to receive said data word transferred from said converter means and to store said data word for subsequent transmission to said data processing system via said second buffer.

4,375,079

DIGITAL DATA DISPLAY SYSTEM

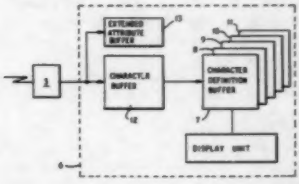
Martin W. Ricketts, and Neil A. Stubbens, both of Eastleigh, England, assignors to International Business Machines Corp., Armonk, N.Y.

Filed Sep. 8, 1980, Ser. No. 185,104

Claims priority, application United Kingdom, Sep. 27, 1979, 7933534

Int. Cl.³ B41B *15/40*; G08B *5/22*

U.S. Cl. 364—518 **6 Claims**



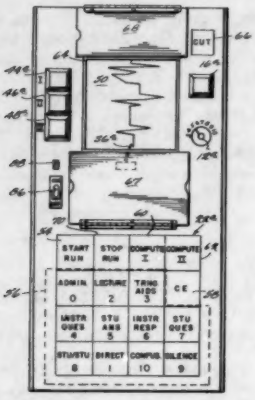
1. A digital data display system in which a raster scanned display device includes a character definition buffer store and a screen buffer for storing screen definition data relating display screen areas with character definitions stored in the character definition buffer store, means for operating the display device, the character definition buffer store and the screen buffer for displaying a picture and/or text in a row and column array of cell positions on the display device, a processing unit connected to the display device through a communications link and having means responsive to a command to send character definition data and screen buffer data to the display device to present a new picture on the screen, the character definition data and the screen buffer data for a new picture being an amount of data that is ordinarily sent to the display device in a series of transmissions, wherein the improvement comprises,

means in the processing unit responsive to a command to present a new picture on the screen of the display device to send screen buffer data and character definition data to the display device interleaved in a series of transmissions with each transmission including character definition data for any new character required by the screen definition data of the same transmission whereby the new picture is built and displayed on the screen from the transmissions of data as they are received at the display device and stored in the buffer and screen stores.

4,375,080
RECORDING AND EVALUATING INSTRUMENT AND METHOD FOR TEACHER EVALUATION

Patrick D. Barry, 2403 Gunwale Pl., Woodbridge, Va. 22192; Robert E. Lowrey, 143 Oliver St., Conway, Ark. 72032, and Kenneth Dobbs, Canton, Okla. 73724

Filed Jun. 4, 1980, Ser. No. 156,503
Int. Cl.³ G06F 3/06, 15/20
U.S. Cl. 364—551 20 Claims



1. A method of collecting and displaying classroom teacher evaluation data comprising the steps of:

generating discrete information signals at consecutive predetermined time intervals successively indicative of respective consecutive predetermined classroom activities observed by an observer in the teacher's classroom; and

recording said discrete information signals in real time, as they are generated, in graphic form providing a permanent record of consecutive transitional events representing transitions in the observed predetermined classroom activities, each of said transitional events being represented by a line on a graph extending from a point of said graph having an ordinate corresponding to just previously received said information to a point of said graph having an ordinate corresponding to presently received said information, the abscissa of each successive such point being incremented by one predetermined interval representing one of said predetermined time intervals.

4,375,081
MULTISTAGE DIGITAL FILTERING UTILIZING SEVERAL CRITERIA

Barry Blesser, Raymond, N.H., assignor to Pencept, Inc., Waltham, Mass.

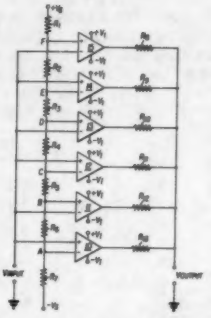
Filed Dec. 5, 1980, Ser. No. 213,583
Int. Cl.³ G06F 15/31
U.S. Cl. 364—724 12 Claims

1. The method of filtering a signal represented by a first series of indicia wherein each indicium of the series represents the amplitude comprising the steps of serially averaging the amplitudes of the indicia of sets of indicia of the first series wherein each set includes a given number n of indicia, n being a positive integer less than the number of indicia in the first series of indicia, to form a second series of indicia and serially amplitude comparing each subsequently occurring indicium of the second series with a previously occurring indicium thereof to form a third series of indicia comprising those indicia which result in comparisons having an amplitude difference greater than a predetermined amount.

4,375,082
HIGH SPEED RECTANGLE FUNCTION GENERATOR

Dieter R. Lohrmann, Lanham, Md., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Dec. 15, 1980, Ser. No. 216,232
Int. Cl.³ G06G 7/26
U.S. Cl. 364—851 12 Claims



1. A high speed rectangle function generator for generating an output voltage which is a rectangle function of a varying input voltage, comprising:

a plurality of amplifiers for generating amplifier output voltages which are switched between two voltage levels in accordance with the varying input voltage and respective fixed voltages, each amplifier output voltage being switched at high speed to one voltage level whenever the input voltage rises above the fixed voltage and being switched at high speed to the other voltage level whenever the input voltage falls below the fixed voltage;

fixed voltage generating means for generating said fixed voltages which are supplied respectively to said amplifiers; and

summing means for summing the amplifier output voltages to generate the output voltage of the rectangle function generator;

wherein the amplifiers are connected to receive the input voltage and the respective fixed voltages and to supply the amplifier output voltages to the summing means as alternately arranged inversion and non-inversion amplifiers so that, in each pair of amplifiers receiving adjacent fixed voltages, one amplifier is connected as an inversion amplifier and the other amplifier is connected as a non-inversion amplifier.

4,375,083
SIGNAL SEQUENCE EDITING METHOD AND APPARATUS WITH AUTOMATIC TIME FITTING OF EDITED SEGMENTS

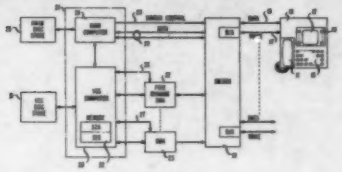
Nicholas F. Maxemchuk, Mountainside, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Jan. 31, 1980, Ser. No. 117,104
Int. Cl.³ G11B 27/02
U.S. Cl. 364—900 36 Claims

1. A method for recording and editing digitally coded signal sample amplitude information, said method comprising the steps of

defining in a train of coded samples successive discrete blocks of samples,

computing for each of a plurality of said blocks a signal parameter that is a function of said information for such a block of samples,



storing in retrievable association sample amplitude information and said parameter for such information, and

processing said sample amplitude information for editing in accordance with the respective associated parameters.

4,375,084

DIGITAL INPUT APPARATUS

Yukio Urushibata, Hino, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

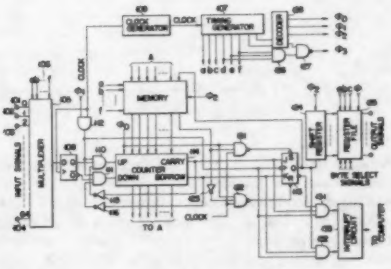
PCT No. PCT/JP79/00169, § 371 Date Apr. 28, 1980, § 102(e) Date Apr. 21, 1980

PCT Filed Jun. 29, 1979, Ser. No. 196,049

Claims priority, application Japan, Aug. 28, 1978, 53-103806; Aug. 28, 1978, 53-103807; Aug. 28, 1978, 53-103808

Int. Cl.[3] G06F *11/00*; G06M *3/02*

U.S. Cl. 364—900 **11 Claims**



1. A digital input apparatus comprising

multiplexer means adapted to receive a plurality of input signals and select a desired input signal for outputting;

first latch means connected to said multiplexer means to latch the output signal selected by said multiplexer means;

counter means for effecting a count operation from an output signal from said first latch means;

second latch means connected to said counter means to latch an output signal from said counter means;

gate means connected between the first latch means and said counter means to control a signal inputted to said counter means by the output of said counter means;

memory means connected to said counter means and to an output signal from said second latch means for storing a count of said counter means and the output signal from said second latch means; and

timing signal generating means for supplying timing signals to the multiplexer means, said counter means and said memory means and for supplying an address control signal to said multiplexer means and said memory means.

4,375,085

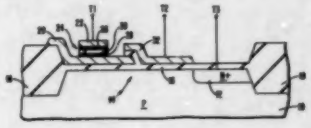
DENSE ELECTRICALLY ALTERABLE READ ONLY MEMORY

Gary D. Grise, Milton, Vt.; Ning Hsieh, San Jose, Calif.; Howard L. Kalter, Colchester, and Chung H. Lam, Williston, both of Vt., assignors to International Business Corporation, Armonk, N.Y.

Filed Jan. 2, 1981, Ser. No. 221,958

Int. Cl.[3] G11C *11/40*

U.S. Cl. 365—104 **14 Claims**



1. A memory comprising:

a semiconductor substrate of a first conductivity type having a region of a second conductivity type defining one end of a channel region,

a control plate,

a floating plate disposed between said control plate and said channel region,

a control gate disposed between said floating plate and said second conductivity type region and coupled to said channel region,

means for selectively charging said floating plate to form an inversion capacitor in said channel region,

means for supplying charge to said inversion capacitor, and

means for detecting the charge in said inversion capacitor.

4,375,086

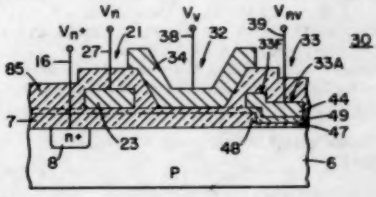
VOLATILE/NON-VOLATILE DYNAMIC RAM SYSTEM

Armand J. van Velthoven, Manitou Springs, Colo., assignor to NCR Corporation, Dayton, Ohio

Filed May 15, 1980, Ser. No. 150,275

Int. Cl.[3] G11C *11/24*

U.S. Cl. 365—149 **10 Claims**



1. A volatile/non-volatile RAM cell having volatile data store, volatile-to-nonvolatile store, and nonvolatile-to-volatile restore capabilities, comprising:

volatile storage means, including a capacitor, for storing binary charge data;

non-volatile storage means for selectively storing the charge data in the volatile storage means;

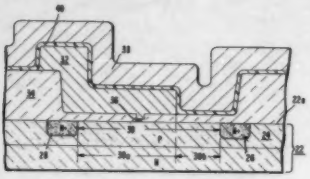
means for providing a preselected energy barrier which must be overcome for charge transfer between the volatile storage means and the non-volatile storage means; and

a charge transfer device for effecting the charge storage state of the volatile storage means during volatile operation and in cooperation with the nonvolatile storage means effecting the nonvolatile-to-volatile restore operation.

4,375,087
ELECTRICALLY ERASABLE PROGRAMMABLE READ ONLY MEMORY

Frank M. Wanlass, Cupertino, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Filed Apr. 9, 1980, Ser. No. 138,806
Int. Cl.³ G11C *13/00, 11/44*
U.S. Cl. 365—218 **20 Claims**



1. An electrically erasable and programmable transistor, comprising:

a semiconductor substrate;

a source and a drain defining a channel region therebetween in said substrate;

an insulated floating gate at least partially overlying said channel region;

a dielectric film between said floating gate and said substrate, said film having a thin tunneling region overlying said channel region;

a control gate overlying said floating gate and spanning said channel region, said control gate insulated from said floating gate and from said substrate; and

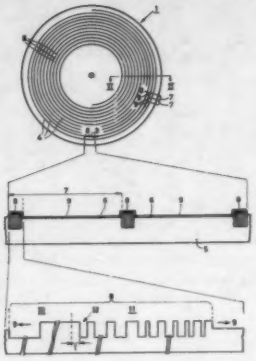
means for setting the potential of said channel region to be sufficiently more attractive to electrons than the potential of said overlying control gate so as to cause electrons to tunnel from said floating gate to said channel region, and for setting said channel region potential to be sufficiently less attractive so as to prevent electrons from tunneling from said floating gate to said channel region and allow electrons to tunnel from said channel region to said floating gate.

4,375,088
OPTICALLY READABLE RECORD CARRIER WITH TRACK VARIATIONS WHICH PROVIDE CLOCK AND TRACKING SIGNALS AND APPARATUS FOR RECORDING AND/OR REPRODUCING DATA FROM SUCH A RECORD CARRIER

Maarten R. de Haan; Klaas Compaan, and Leopold H. Hissel, all of Eindhaven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Apr. 14, 1980, Ser. No. 139,924
Claims priority, application Netherlands, Jan. 9, 1980, 8000122
Int. Cl.³ G11B *7/00*
U.S. Cl. 365—234 **38 Claims**

1. A record carrier for storing a digitally coded signal having a fixed bit frequency and a power spectrum with a substantially zero level at a predetermined frequency, said record carrier comprising a substrate provided with at least one information section for storing the digitally coded signal in a form detectable by a beam of radiation and at least one elongated servo track having a first periodic variation of a first period corresponding to said predetermined frequency and a configuration such that when scanned by a beam of radiation, the radiation is modulated by said first periodic variation to produce a first modulation component of a frequency corresponding to said first period for generating a clock signal for synchronizing read out or recording of the digitally coded signal, said servo track further having a second periodic variation in a direction transverse to the longitudinal direction of said servo track of a second period which is at least of the same order of magnitude as said first period, said second variation being configured to produce a second modulation component in the radiation of a frequency corresponding to said second period

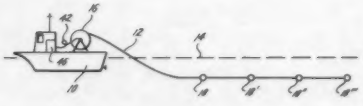


for generating a tracking signal for guiding a radiation beam used for readout or recording of the digitally coded signal.

4,375,089
DEPTH TRANSDUCER SYSTEM FOR A SEISMIC STREAMER CABLE

Ben B. Thigpen; Eldon E. Crump, and David G. Shave, all of Houston, Tex., assignors to Western Geophysical Company of America, Houston, Tex.

Filed Oct. 27, 1980, Ser. No. 200,852
Int. Cl.³ G01V *1/38*
U.S. Cl. 367—20 **11 Claims**



1. A depth transducer system for a ship-towed seismic marine streamer cable comprising:

a plurality of depth transducers externally secured to a seismic streamer cable at successively greater distances from a towing ship;

means for periodically transmitting an electrical control signal through a common transmission line mounted internally of said streamer cable;

external sensing means associated with said depth transducers, for sensing the presence of a control signal in said common transmission line;

means in said depth transducers responsive to a sensed control signal for launching a depth-proportional signal in the form of a damped transient wave train into said common transmission line;

means for delaying the transmission of the response of said transducers in a predetermined relationship to the distances of the respective depth transducers from the towing ship;

an electrical power source associated with each said depth transducer; and

a switch in each said depth transducer having a first contact position for charging a capacitor from said power source and a second contact position for discharging said capacitor into an LC circuit in said depth transducer to generate said depth-proportional signal and means for actuating said switch in response to a sensed, delayed control signal.

4,375,090

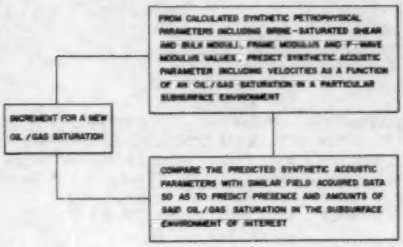
METHOD FOR INTERPRETING SEISMIC RECORDS TO YIELD INDICATIONS OF GAS/OIL IN AN EARTH FORMATION SUCH AS A SANDSTONE, LIMESTONE, OR DOLOSTONE

Don D. Thompson, Corona Del Mar; Robert J. S. Brown, Fullerton, and Richard J. Runge, Anaheim, all of Calif., assignors to Chevron Research Company, San Francisco, Calif.

Continuation of Ser. No. 863,828, Dec. 23, 1977, abandoned. This application Oct. 9, 1979, Ser. No. 83,189

Int. Cl.³ G01V 1/30

U.S. Cl. 367—73 10 Claims


FROM CALCULATED SYNTHETIC PETROPHYSICAL PARAMETERS INCLUDING BRINE-SATURATED SHEAR AND BULK MODULI, FRAME MODULUS AND P-WAVE MODULUS VALUES, PREDICT SYNTHETIC ACOUSTIC PARAMETER INCLUDING VELOCITIES AS A FUNCTION OF AN OIL/GAS SATURATION IN A PARTICULAR SUBSURFACE ENVIRONMENT
INCREMENT FOR A NEW OIL/GAS SATURATION
COMPARE THE PREDICTED SYNTHETIC ACOUSTIC PARAMETERS WITH SIMILAR FIELD ACQUIRED DATA SO AS TO PREDICT PRESENCE AND AMOUNTS OF SAID OIL/GAS SATURATION IN THE SUBSURFACE ENVIRONMENT OF INTEREST

1. System for resolving event characteristics of a seismic record so as to determine gas/oil fractions in a selected zone of an earth formation by creating synthetic gas/oil-indicating characteristics from brine-saturated petrophysical parameters corresponding to each selected zone of interest, and comparing such characteristics with said record comprising:

(A) Means for obtaining said seismic record for at least said selected zone;

(B) Means for determining actual compressional velocity and density values of said zone of interest based on field information associated with a known zonal lithology selected from a group comprising sandstone, limestone and dolostone;

(C) A programmable digital computer for:

(i) from the parameters of (B), generating a brine-saturated P-wave modulus value corresponding to said zone of interest;

(ii) from said generated brine-saturated P-wave modulus value of (i), predicting compressional velocities of said zone with gas/oil in differing amounts present in said zone, in accordance with the relationship

$$V_p = 1/\rho_b K_a + \frac{(1 - K_a/K_m)^2}{\phi K_f + (1 - \phi)/K_m - K_a/K_m^2} + (4/3)G^* \text{ i}$$

where rho-b is the bulk density, ϕ is the porosity, G* is the shear modulus at the saturations of interest, Kf equals the bulk modulus for the liquid-gas mixture, Ka is the frame modulus, Km is the bulk modulus of a hypothetical rock, i.e., same composition but perfectly cemented with zero porosity;

(iii) from seismic velocities of (B), predicting synthetic seismic amplitude information with gas/oil present in said zone in differing amounts; and

(iv) comparing said predicted amplitude information with actual field-acquired amplitude data associated with said seismic record of (A) so as to determine both presence and amounts of gas/oil within said zone of interest.

4,375,091

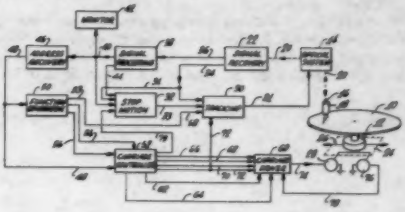
METHOD AND APPARATUS FOR INFORMATION RETRIEVAL FROM AN OPTICALLY READABLE STORAGE MEDIUM

Wayne R. Dakin, Redondo Beach, and Ludwig Ceshkovsky, Fountain Valley, both of Calif., assignors to Discovision Associates, Costa Mesa, Calif.

Continuation of Ser. No. 920,777, Jun. 30, 1978, abandoned. This application Aug. 24, 1981, Ser. No. 295,629

Int. Cl.³ G11B 7/00, 17/00

U.S. Cl. 369—32 12 Claims



1. In an apparatus for selectively retrieving information from a plurality of optically readable information tracks formed in an information storage medium, wherein the information includes addresses uniquely identifying each information track, and the apparatus includes means for impinging an incident beam of radiation upon the storage medium and means for recovering information from a modulated beam of radiation produced thereby, the combination comprising:

first means for selecting a target address corresponding to a target track from which information is to be retrieved in a retrieval mode of operation;

carriage means for moving the storage medium and the incident beam of radiation relative to one another to cause the incident beam to move across said tracks in a search mode of operation;

second means for monitoring the modulated beam to detect addresses from information recovered as the incident beam impinges upon the storage medium while said carriage means is in said search mode of operation;

third means, responsive to both said first means and said second means, for comparing the target address with addresses detected during relative movement between the storage medium and the incident beam in said search mode of operation to produce an indication of the separation between the target and the impingement point of the incident beam; and

control means for conditioning said carriage means to decrease the separation between the impingement point of the incident beam and the target track, said control means being responsive to said third means to vary the rate of relative movement in a prescribed manner as the separation decreases, said control means causing said carriage means to cease crossing tracks when said target address is detected.

4,375,092

AUTOMATIC MUSIC SELECTING DEVICE

Junichi Yoshio, Tokorozawa, Japan, assignor to Pioneer Electronic Corporation, Tokyo, Japan

Filed Jul. 16, 1981, Ser. No. 283,855

Claims priority, application Japan, Jul. 17, 1980, 55-96870; Sep. 24, 1980, 55-131499

Int. Cl.³ G11B 3/38, 17/06

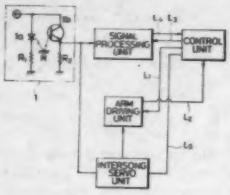
U.S. Cl. 369—41 4 Claims

2. An automatic music selecting device comprising:

an intersong sensor mounted on a pickup cartridge mounted on an arm for detecting intervals between adjacent songs on a recording disc upon movement of said arm;

a control unit for stopping said arm at a predetermined interval between adjacent songs on said recording disc, said control unit comprising a data buffer for storing a number of a selected song; a counter operating in response to said intersong sensor for counting intersong intervals; coincidence circuit means operating in response to said data buffer and said counter for producing a coincidence signal when a counted value of said counter coincides with a song number stored in said data buffer; and a flip-flop the operatioaal state of which is controlled in accordance with said coincidence signal, first and second control signals being produced on non-inverted and inverted outputs of said flip-flip;

an intersong servo unit, said intersong servo unit comprising a first buffer amplifier having an input coupled to receive an output from said intersong sensor; a first analog switch having a signal input coupled to an output of said first



buffer amplifier and a control input coupled to receive said first control signal; a capacitor coupled between an output of said first analog switch and ground; a second analog switch having a signal input coupled to said output of said first analog switch and an output coupled to ground with a control input of said second analog switch being coupled to receive said first control signal; a second buffer amplifier having an input coupled to said output of said first analog switch, an operational amplifier having a non-inverting input coupled to said output of said first buffer amplifier and an inverting input coupled to an output of said second buffer amplifier; and a third analog switch having a signal input coupled to an output of said operational amplifier and a control input coupled to receive said second control signal; and

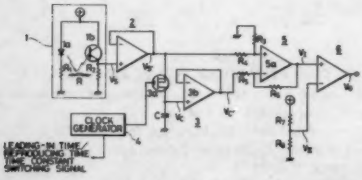
an arm driving unit operating in response to an output signal produced at an output of said third analog switch of said intersong servo unit.

4,375,093

INTERMUSIC DETECTING CIRCUIT FOR AUTOMATIC MUSIC SELECTING DEVICE

Shinya Takahashi, Tokorozawa, Japan, assignor to Pioneer Electronic Corporation, Tokyo, Japan

Filed Jul. 17, 1981, Ser. No. 284,022
Claims priority, application Japan, Jul. 17, 1980, 55-96871
Int. Cl.³ G11B *3/38, 17/06*
U.S. Cl. 369—41 **6 Claims**



1. An intersong detecting circuit for an automatic music selecting device comprising:

an intersong sensor for detecting intersong intervals between adjacent songs on a recording disc;

means for sampling an output signal from said intersong sensor at a predetermined rate and holding the sampled signal;

means responsive to the held signal from said sampling and holding means and to said output from said sensor for comparing said held signal with said output from said sensor to thereby produce a differential signal;

means responsive to the differential signal from said comparing means for producing an intersong identification signal when said differential signal exceeds a predetermined threshold value; and

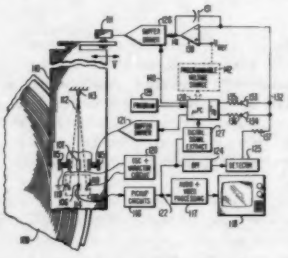
means for switching said sampling rate of said sampling and holding means between leading-in times and reproducing times of said recording disc.

4,375,094

APPARATUS FOR ADVANCING A VIDEO DISC PICKUP TRANSDUCER BEYOND A DISC RECORD DEFECT

Kevin C. Kelleher, Plainfield, and Todd J. Christopher, Indianapolis, both of Ind., assignors to RCA Corporation, New York, N.Y.

Filed Nov. 10, 1980, Ser. No. 205,342
Int. Cl.³ H04N *5/76*
U.S. Cl. 369—43 **9 Claims**



1. A video disc playback apparatus comprising:

a base for rotatably supporting a disc record, said record having information tracks thereon;

a signal pickup transducer for engaging said information track and recovering prerecorded signal therefrom; said pickup transducer secured to the first end of a stylus arm;

a carriage mechanism wherein a second end of said stylus arm is secured so that a longitudinal axis of the stylus arm is substantially tangential to an information track currently engaged by said pickup transducer, said carriage mechanism translating the secured end of the stylus arm in consonance with the radial travel of the pickup transducer across the disc record;

an electromechanical transducer cooperating with said stylus arm for selectively deflecting said pickup transducer radially across said information tracks;

motive means responsive to control signals for translating said carriage mechanism;

circuitry responsive to the relative carriage-stylus position for generating said control signals to maintain the stylus arm in a substantially mechanically unbiased condition relative to the carriage mechanism; and

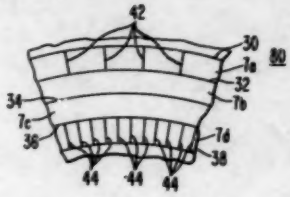
means for selectively conditioning said circuitry to create a mechanical bias between the carriage and stylus arm thereby creating forces in a direction to aid or restrain deflection forces developed by said electromechanical transducer.

4,375,095

METHOD AND APPARATUS FOR TESTING STYLI

Eugene O. Keizer, Princeton, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Jan. 5, 1981, Ser. No. 222,546
Int. Cl.³ H04N 5/76; G11B 3/38
U.S. Cl. 369—55 19 Claims



1. A test disc record for testing a capacitive playback stylus, said stylus formed of a stylus shoe which normally contacts a continuous spiral groove of a capacitive information disc record during normal playback and a stylus electrode which is used to recover information recorded in said capacitive information disc record by means of capacitance variations between the capactive information disc record and the stylus electrode, said stylus electrode adapted to be normally completely within said groove while said shoe is contacting said groove;

said test disc record including in a major surface a continuous spiral adapted to receive said stylus for testing the width or the symmetrical relationship of said electrode in said groove;

said spiral groove further being arranged into m groups or n contiguous turns, each turn of each of said groups having the same predetermined width wherein m and n are integers which have a value, respectively, of at least two;

a test signal recorded in at least one of said turns of each group of turns, said signal having a known amplitude and frequency,

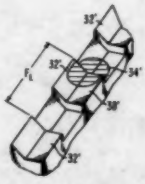
whereby relative amplitude information of said signal recovered from each turn by measuring capacitance variations in each turn by said stylus electrode riding in said groove is an indication of the symmetry or width of said stylus electrode relative to said grooves.

4,375,096

MULTI-BANDWIDTH OPTICAL PLAYBACK APPARATUS WITH ELONGATED READ SPOT

Istvan Gorog, Princeton, and Michael J. Lurie, East Brunswick, both of N.J., assignors to RCA Corporation, New York, N.Y.

Filed Mar. 10, 1981, Ser. No. 242,250
Int. Cl.³ G11B 7/00, 7/18, 27/36, 11/18
U.S. Cl. 369—102 15 Claims



1. An optical playback system for recovering from a storage medium data recorded in an information track including data recorded within a first given band of low frequencies and data recorded within a second given band of high frequencies, said information track having a succession of undulations representative of said data along the length thereof, said system comprising:

an objective lens for focusing a light beam to a spot on said information track, said light spot having a dimension in a direction along the length of said information track, said objective lens having a given numerical aperture;

means for establishing relative motion between said light spot and said information track;

means, responsive to the interaction of said focused light and said undulations during the occurrence of said relative motion, for developing signals representative of the data recorded in said information track; and

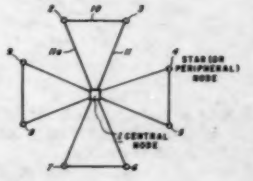
means for modifying the shape of said light beam such that a substantial portion of the light incident on said developing means contains information representative of said recorded data and passes through said objective lens near the optical axis of a light path therethrough, said dimension of said light spot along said length of said information track being lengthened to reduce the frequency response of said optical system, recovery of said data recorded within said first given band of low frequencies being improved by modifying the shape of said light beam.

4,375,097

TRANSPARENT INTELLIGENT NETWORK FOR DATA AND VOICE

Mehmet E. Ulug, Ottawa, Canada, assignor to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 912,114, Jun. 2, 1978, abandoned. This application May 15, 1980, Ser. No. 150,265
Int. Cl.³ H04J 6/00
U.S. Cl. 370—94 14 Claims



1. A communications network having a plurality of peripheral and central communications nodes, a first plurality of terrestrial communications links connecting said central nodes directly to each other, a second plurality of terrestrial communications links individually connecting said peripheral nodes to said central nodes, means for connecting a plurality of customers to each peripheral node, certain of said means being effective to input data at a first given speed and certain others for inputting data at a different speed, developing means at each of said nodes for successively developing at a first repetition rate multi-user packets each containing data from at least two of said plurality of customers connected to that node, said developing means including means effective in a first mode for sampling data input from said customers at intervals directly related to their output speeds at the exit node and, when in another mode, effective upon the existence of available channel space, at speeds higher than said output speeds at the exit node, and means connected to said peripheral node for conducting said multi-user packets to other nodes within said network.

4,375,098
DIGITAL TELECOMMUNICATIONS SYSTEM

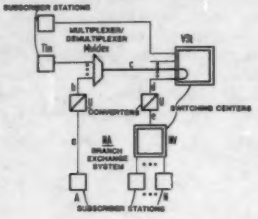
Peter Gerke, Graefelfing; Gerhard Arndt, Holzkirchen; Friedrich Roescheisen, Graefelfing, and Heinrich Bruentrup, Munich, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Filed Jul. 2, 1980, Ser. No. 165,297

Claims priority, application Fed. Rep. of Germany, Jul. 26, 1979, 2930420

Int. Cl.³ H04J *3/12*

U.S. Cl. 370—110.1 **5 Claims**



1. A digital communications system which operates with outslot signaling in outslot signal channels provided outside of the communications band of communications channels and with inslot signaling within a communications channel, comprising:

connection means for establishing a connection between two telecommunication locations including connection segments in a communications channel not having an outslot signal channel; and

signaling means operable to provide outslot signaling in an inslot-outband-subchannel within the communications channel and outside of the communications band of the communications channel employed for actual message transmission.

4,375,099
LINK PERFORMANCE INDICATOR WITH ALTERNATE DATA SAMPLING AND ERROR INDICATION GENERATION

George W. Waters, Indialantic, and Michael B. Luntz, Melbourne Beach, both of Fla., assignors to Harris Corporation, Melbourne, Fla.

Filed Apr. 8, 1980, Ser. No. 138,456

Int. Cl.³ G06F *11/30*

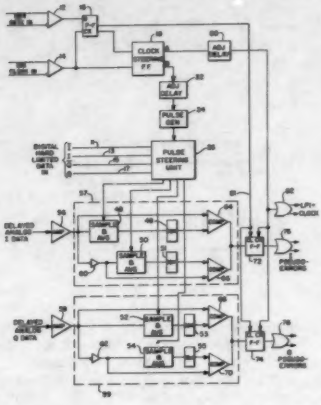
U.S. Cl. 371—6 **12 Claims**

1. A data transmission error detection system for analyzing incoming analog data signals representing a sequence of equal amplitude ones and zeroes, comprising:

gate control means for generating a repetitive window defining gating signal at repetitive selected sampling times within a data burst from a particular transmitting station occurring at a regularly-spaced rate;

pulse signal averaging means, controlled by a gating signal generated by said gate control means and coupled to receive an incoming analog data signal, for generating an output corresponding to the average level of successive samples of said incoming analog data signal of a like polarity; and

comparator means for comparing a prescribed fraction of the output of said pulse signal averaging means with the level of said incoming analog data signal at repetitive respective comparison times and outputting a pseudo-error indication signal in response to the level of said incoming analog data signal failing to exceed the level of



said prescribed fraction of the output of said pulse signal averaging means at a respective comparison time.

4,375,100
METHOD AND APPARATUS FOR ENCODING LOW REDUNDANCY CHECK WORDS FROM SOURCE DATA

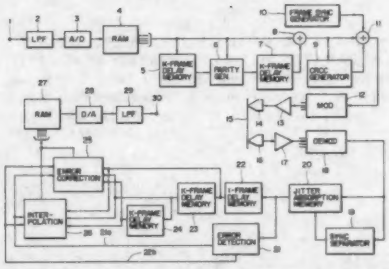
Shiro Tsuji, Minoo; Hiroshi Matsushima, Hirakata; Yasuharu Shimeki, Suita; Nobuyoshi Kihara, Amagasaki, and Misao Kato, Neyagawa, all of Japan, assignors to Matsushita Electric Industrial Company, Limited, Osaka, Japan

Filed Oct. 23, 1980, Ser. No. 199,703

Claims priority, application Japan, Oct. 24, 1979, 54-137122; Feb. 29, 1980, 55-25588; Jun. 11, 1980, 55-79558

Int. Cl.³ G06F *11/10*

U.S. Cl. 371—38 **14 Claims**



1. A method of processing data words comprising the steps of organizing the data words into successive patterns of rows and columns, deriving a plurality of first parity words from columnwise data words of each pattern, arranging the first parity words in a row parallel to the rows of data words, deriving a plurality of second parity words from diagonally arranged data words of each pattern, arranging the second parity words in a pattern of rows and columns in succession to the pattern of data words, generating a check code word, and appending the check code word to each row of said data and first and second parity words for enabling detection of errors in each row.

4,375,101
SYSTEM FOR FORMATTING DATA ON VIDEO TAPE FOR HIGH ACCURACY RECOVERY

Nicholas Cerracchio, Las Vegas, Nev., assignor to Video Education, Inc., Reno, Nev.

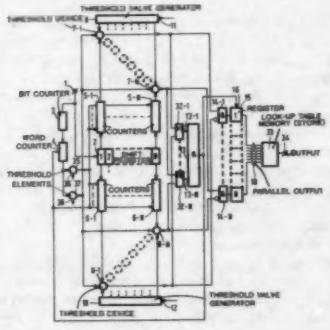
Filed Sep. 30, 1980, Ser. No. 192,226
Int. Cl.³ G06F 11/08
U.S. Cl. 371—69 10 Claims

1. A prerecorded tape adapted to be played on a video tape player to recover information thereon, said tape having binary data recorded on the video signal track thereof in a prearranged format comprising at least three redundant blocks of data words between successive vertical sync pulses recorded on said video signal track.

4,375,102
DIGITAL CODE WORD DETECTION

Andreas J. W. Van Daal, Hilversum, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Jul. 29, 1980, Ser. No. 173,309
Claims priority, application Netherlands, Aug. 3, 1979, 7905968
Int. Cl.³ H04L 7/02
U.S. Cl. 375—94 9 Claims



1. A method of detecting a message in the form of a digital code word, the digital code word containing a sequence of a predetermined number of bits and being included a few times consecutively and sequentially in a bit stream, characterized in that

the bit stream is randomly divided into data blocks, each data block having a number of bits which is equal to the number of bits of the digital code word;

the digital bit state is determined and recorded for each bit position in the data block;

the recorded data of each bit position are accumulated for a plurality of consecutive data blocks;

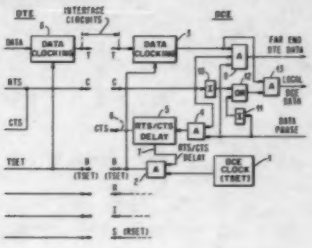
the accumulated value of the recorded data of each bit position for a plurality of data blocks is compared with a threshold value;

the digital code word is detected from the digital state of the accumulated values when the threshold value for each bit position in a plurality of data blocks has at least been reached.

4,375,103
METHOD AND APPARATUS OF SIGNALLING REQUEST TO SEND CLEAR TO SEND DELAY

August P. Arneth, Raleigh, and Curtis L. Foshee, Cary, both of N.C., assignors to International Business Machines Corp., Armonk, N.Y.

Filed Sep. 17, 1980, Ser. No. 187,901
Int. Cl.³ H04L 7/00; H03K 1/17
U.S. Cl. 375—109 2 Claims



2. In a data communications system interface defining the connection between two communications terminals or systems comprising a local unit and a remote unit, and in which the communications interface includes a timing clock signal output line and a request to send line but does not include a separate control line for granting to a remote requesting station a clear to send authorization control signal, an improved method of indicating the delay period between a request to send signal receipt and an establishment of carrier synchronization and frequency so that transmission may begin, comprising steps at said local unit of:

detecting a request to send input from said remote unit at said local unit;

initiating a delay period in response to detecting said request to send signal; and

interrupting said timing clock signal output line in response to said receipt of request to send signal; and

re-establishing said transmission clock signal output in response to the completion of said delay period, thereby permitting said remote equipment to begin transmission.

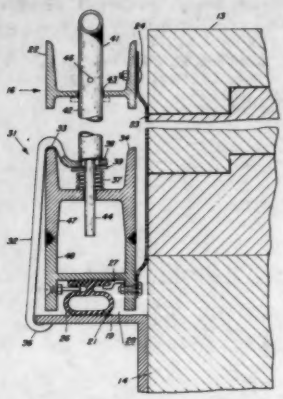
4,375,104
POOL GATEWAY SEAL

James A. Starr, and Leopold A. Steinert, both of San Jose, Calif., assignors to General Electric Company, San Jose, Calif.

Filed Aug. 20, 1979, Ser. No. 68,191
Int. Cl.³ G21C 13/02; G21D 1/02
U.S. Cl. 376—203 3 Claims

1. In a nuclear facility including interconnectable pools having a substantially vertically disposed gateway, means for providing a barrier to liquid flow between said pools comprising: a substantially vertically disposed frame removably positionable in said gateway and having a liquid impermeable sheet sealed thereon; an inflatable sealing tube mounted in a channel providing in the sides of said frame corresponding to said gateway, said tube engaging said gateway when inflated to effect a seal between said gateway and said frame; said channel of said frame being deeper than the thickness of said sealing tube when uninflated; a support ledge extending across at least the bottom of said gateway and having a sealing surface extending perpendicular to the plane of said frame when said frame is positioned in said gateway; at least one hook plate mounted for pivotal movement about an edge provided on said frame and cooperating with a spring for normally biasing said hook plate into an engagable position with said support ledge;

and means remotely actuatable from the side of said hook plate and cooperating with said hook plate to effect the release



thereof from said engagable position with respect to said support ledge.

4,375,105

X-RAY DIAGNOSTIC GENERATOR

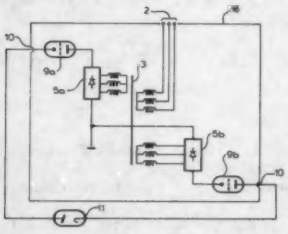
Heinz Baumann, Erlangen-Buckenhof, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 960,861, Nov. 15, 1978. This application Aug. 29, 1980, Ser. No. 182,689

Claims priority, application Fed. Rep. of Germany, Jan. 20, 1978, 7801673[U]

Int. Cl.³ H05G *1/02, 1/32*

U.S. Cl. 378—092 **2 Claims**



1. In an X-ray diagnostic generator suitable for use with a plurality of externally located X-ray tubes, having a high voltage step-up transformer with a secondary connected to high voltage means for rectification, an improvement comprising:

a single, oil filled, closed housing having AC input connection means connected to a primary of the high voltage step-up transformer, output high voltage connection means adapted to be switchably connected to the plurality of X-ray tubes to supply high voltage between an anode and a cathode of a selected X-ray tube, and

first and second high voltage control means responsive to external control via control leads, each of said control means being connected between a rectified output of a corresponding one of the high voltage means for rectification and a corresponding section of said output high voltage connection means, each of said high voltage control means being adapted to regulate the output high voltage, and

said high voltage step-up transformer being positioned and of sufficient dimensions to provide electrical shielding, said high voltage step-up transformer being positioned between said first and second control means to provide electrical shielding therebetween.

4,375,106

REMOTE CONTROL CIRCUIT

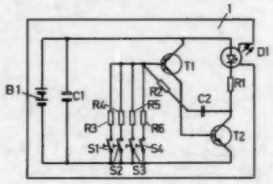
Walter Voll, Nikolaus-Fey-Strasse 2, Hassfurt 8728, Fed. Rep. of Germany

Filed Dec. 11, 1980, Ser. No. 215,467

Claims priority, application Fed. Rep. of Germany, Dec. 22, 1979, 2951974; Dec. 22, 1979, 2951975; Dec. 22, 1979, 2951976

Int. Cl.³ H04B *9/00*

U.S. Cl. 455—603 **10 Claims**



1. A remote control circuit for controlling one or more functions in a device, said circuit comprising a transmitter for transmitting control signal pulses and a receiver for receiving and evaluating said pulses, wherein the transmitter comprises

(a) a monostable multivibrator for generating a cyclically repetitive train of pulses at determinable intervals and comprising two complementary transistors and a resistive-capacitive coupling, the collector of a first one of said of transistors being connected to the base of the second one of said transistors and the collector of said second transistor being coupled to the base of said first transistor by way of said resistive-capacitive coupling;

(b) switching means;

(c) pulse interval determining means for determining different pulse intervals for said train and corresponding in number to the number of said functions and controllable by said switching means to cause a control signal pulse transmission of the transmitter to have a selected one of said intervals; and

(d) signal pulse transmitting means connected to the collector of said second transistor to provide a control signal pulse transmission with the selected pulse interval; and

wherein the receiver comprises

(a) signal pulse receiving means for receiving signal pulse transmissions from said signal pulse transmitting means;

(b) a resistor-capacitor charging circuit in which the capacitor is so chargeable via the resistor and dischargeable by each pulse of a received signal pulse transmission as to provide an output sawtooth voltage having a peak magnitude dependent on the selected pulse interval;

(c) a filter stage connected to said resistor-capacitor charging circuit to filter said output voltage thereof; and

(d) a voltage level detecting stage connected to said filter stage to detect the level of the voltage filtered by said stage and to control a respective function of said device which is associated with the detected voltage level.

DESIGN PATENTS

GRANTED FEB. 22, 1983

ERRATA

For CLASS	See PATENT NO.
D32–066	267,997
D23–138	267,998

DESIGNS

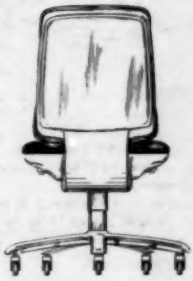
FEBRUARY 22, 1983

267,986
BRUSH FOR APPLYING MAKEUP
Milton O. Flower, Van Nuys, Calif., assignor to Max Factor & Co., Hollywood, Calif.
Filed Dec. 22, 1980, Ser. No. 218,842
Term of patent 14 years
Int. Cl. D4—*02*
U.S. Cl. D4—25

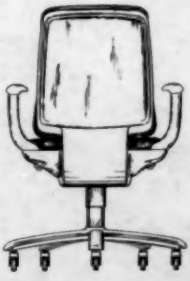
267,987
TREATMENT CHAIR
Dennis F. Leffler, Charlotte; Danny M. Truette, Pineville, both of N.C., and Edward C. Landan, Fort Mill, S.C., assignors to The Pelton & Crane Company, Charlotte, N.C.
Filed Feb. 13, 1981, Ser. No. 234,123
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—22

267,988
OPENABLE TABLE
Gabriella Crespi, Via Montenapoleone 2, Milan, Italy
Filed Jan. 11, 1980, Ser. No. 111,224
Claims priority, application Italy, Jul. 12, 1979, 22091B/79
Term of patent 14 years
Int. Cl. D6—*03*
U.S. Cl. D6—27

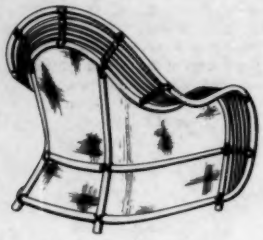
267,989
CHAIR
Randall P. Buhk, Wyoming; Kenneth W. Hozeski, Grandville, and Alex Karrip, Grand Rapids, all of Mich., assignors to Steelcase Inc., Grand Rapids, Mich.
Filed Nov. 5, 1979, Ser. No. 91,695
The portion of the term of this patent subsequent to Feb. 22, 1997, has been disclaimed.
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—30



267,990
CHAIR
Randall P. Buhk, Wyoming; Kenneth W. Hozeski, Grandville, and Alex Karrip, Grand Rapids, all of Mich., assignors to Steelcase Inc., Grand Rapids, Mich.
Filed Nov. 5, 1979, Ser. No. 91,693
The portion of the term of this patent subsequent to Feb. 22, 1997, has been disclaimed.
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—31

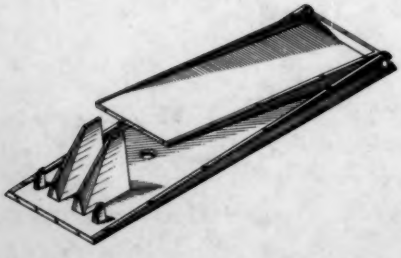


267,991
CHAIR
Henry Olko, Chicken Valley Rd., Locust Valley, N.Y. 11650
Filed Oct. 23, 1980, Ser. No. 199,860
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—57

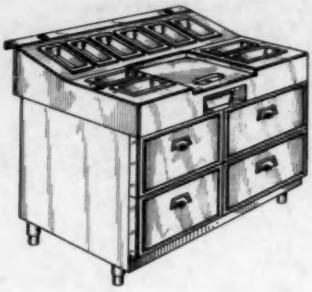


267,992
DISPLAY FIXTURE
Robert N. Shelton, Leominster, Mass., assignor to Foster Grant Corporation, Leominster, Mass.
Filed May 14, 1980, Ser. No. 149,788
Term of patent 14 years
Int. Cl. D06—*06*
U.S. Cl. D6—85

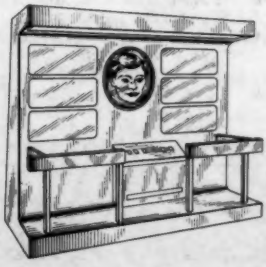
267,993
TOOTH PASTE DISPENSER
Gilbert E. Barrera, 11845 West Ave., San Antonio, Tex. 78216
Filed Aug. 5, 1980, Ser. No. 175,492
Term of patent 14 years
Int. Cl. D23—*02*
U.S. Cl. D6—87



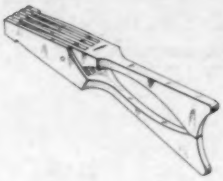
267,994
FOOD PRODUCT ASSEMBLY TABLE
Norman E. Luzich, Wichita, Kans., assignor to Pizza Hut, Inc., Wichita, Kans.
Filed Sep. 22, 1980, Ser. No. 189,696
Term of patent 14 years
Int. Cl. D06—*04*
U.S. Cl. D6—160

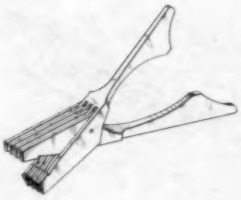


267,995
ANIMATED DISPLAY
Harvey E. Bullard, 4250 Marine Dr., Chicago, Ill. 60613
Filed Nov. 21, 1980, Ser. No. 208,883
Term of patent 14 years
Int. Cl. D20—*02*
U.S. Cl. D6—172

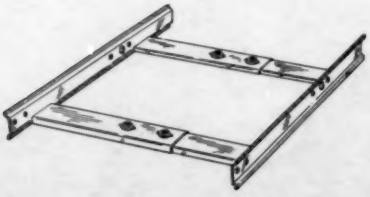


267,996
FOOD MINCER
Eugene Kowalski, South Orange, N.J., assignor to ELPO Industries, Inc., Paramus, N.J.
Filed Dec. 8, 1980, Ser. No. 213,905
Term of patent 14 years
Int. Cl. D07—*04*
U.S. Cl. D7—101

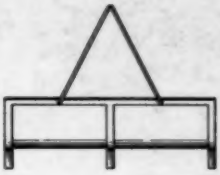




267,997
FRAME FOR IRONING BOARD
Dan A. B. Pettersson, Hillerstorp, Sweden, assignor to AB Jarnarmatur, Hillerstorp, Sweden
Filed May 4, 1978, Ser. No. 903,032
Claims priority, application Sweden, Nov. 8, 1977, 772273
Term of patent 14 years
Int. Cl. D7—*05*
U.S. Cl. D32—66

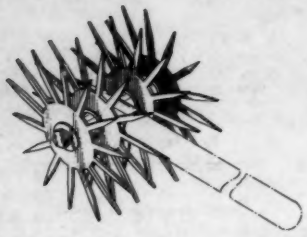


267,998
FIREPLACE WOODBIN
Benjamin A. Rhoades, Rte. 1, Box 126, Arroyo Grande, Calif. 93420
Filed Sep. 12, 1980, Ser. No. 186,712
Term of patent 14 years
Int. Cl. D7—*08*
U.S. Cl. D23—138.5

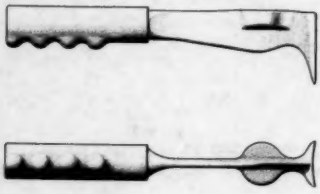


267,999
FIREPLACE POKER
Benjamin A. Rhoades, Rte. 1, Box 126, Arroyo Grande, Calif. 93420
Filed Sep. 12, 1980, Ser. No. 186,714
Term of patent 14 years
Int. Cl. D7—*08*
U.S. Cl. D8—14

268,000
ROTARY CULTIVATING TOOL
Henry P. Dellinger, 1036 Pineglen Dr., Forest Park, Ga. 30050
Filed Dec. 4, 1980, Ser. No. 213,189
Term of patent 14 years
Int. Cl. D8—*01*
U.S. Cl. D8—08

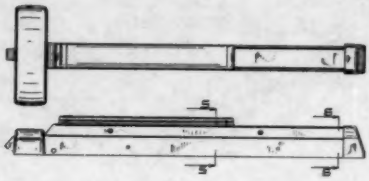


268,001
STRIPPING TOOL FOR USE ON CONCRETE FORMS OR THE LIKE
Barry E. Balz, 1480 N.W. 203rd St., Miami, Fla. 33169
Filed Sep. 12, 1980, Ser. No. 186,527
Term of patent 14 years
Int. Cl. D8—*05*
U.S. Cl. D8—14

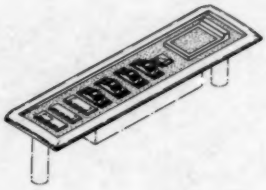


268,002
WIRE NIPPERS
Bengt Brunosson, Enköping, and Lars Erlandsson, Eskilstuna, both of Sweden, assignors to AB Bahco Verktyg, Enkoping, Sweden
Filed Sep. 19, 1979, Ser. No. 76,917
Claims priority, application Sweden, Mar. 19, 1979, 79-0722
Term of patent 14 years
Int. Cl. D8—*05*
U.S. Cl. D8—58

268,003
EXIT OPERATOR
Richard J. Ohno, 38 Orchard Hill Rd., Branford, Conn. 06405
Filed Oct. 16, 1980, Ser. No. 197,509
Term of patent 14 years
Int. Cl. D8—*06*
U.S. Cl. D8—302



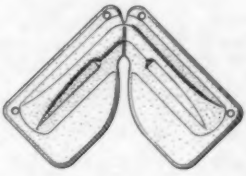
268,004
CONTROL PANEL FOR COMBINATION LOCK AND THE LIKE
Edward M. Stolarz, Yorktown Heights, N.Y., assignor to Presto Lock, Inc., Garfield, N.J.
Filed Oct. 9, 1980, Ser. No. 195,362
Term of patent 14 years
Int. Cl. D8—*07*
U.S. Cl. D8—331



268,005
SHANK PORTION OF A SHOWER CURTAIN HOOK OR THE LIKE
Noel Levine, New York, N.Y., assignor to Associated Products, Inc., New York, N.Y.
Continuation-in-part of Ser. No. 119,082, Feb. 21, 1980, which is a continuation of Ser. No. 622,185, Oct. 10, 1975, abandoned.
This application Apr. 2, 1980, Ser. No. 136,509
Term of patent 14 years
Int. Cl. D8—*08*
U.S. Cl. D8—367

268,006
DRIVE FASTENER
Burnell J. Wollar, Barrington, Ill., assignor to Phillips Plastics Corporation, Phillips, Wis.
Filed Oct. 27, 1980, Ser. No. 201,244
Term of patent 14 years
Int. Cl. D8—*08*
U.S. Cl. D8—393

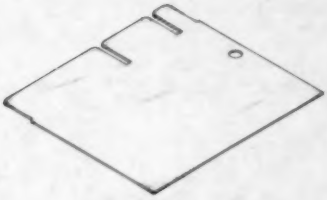
268,007
CHOCK FOR CONTAINERS, ICE CHESTS, STORAGE BOXES OR THE LIKE
Walter H. Zinnecker, 9626 Radio Rd., Houston, Tex. 77075
Filed Sep. 3, 1980, Ser. No. 184,257
Term of patent 14 years
Int. Cl. D8—*99*
U.S. Cl. D8—403



268,008
FLASK OR SIMILAR ARTICLE
Frank H. Witt, Jr., Trumbull, Conn., assignor to Rosalie S. Levine, Trumbell; Mildred J. Bisacca, Fairfield and GRRN Co., Easton, all of, Conn.
Filed Oct. 15, 1980, Ser. No. 197,337
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—307

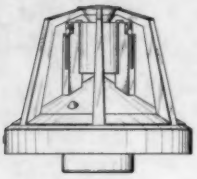
268,009
CONTAINER FOR PERFUME
Aaron Hirsh, 8 Chatham St., Deer Park, N.Y. 11729
Filed Jan. 30, 1981, Ser. No. 229,965
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—354

268,010
DISPLAY CARD
John D. O'Brien, Palmer, Mass., assignor to Wm. E. Wright Co., West Warren, Mass.
Filed Jun. 15, 1981, Ser. No. 273,983
Term of patent 14 years
Int. Cl. D9—*99*
U.S. Cl. D9—457



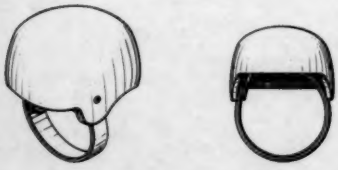
268,011
DESK CHRONOMETER
Charles S. Bryk, New Canaan, Conn., and Paul C. Batto, Brooklyn, N.Y., assignors to Texasgulf Inc., Stamford, Conn.
Filed Oct. 9, 1980, Ser. No. 195,363
Term of patent 14 years
Int. Cl. D10—*04*
U.S. Cl. D10—15

268,012
BURGLAR ALARM
Akira Mihara, Tokyo, Japan, assignor to Nohmi Bosai Kogyo Co., Ltd., Tokyo, Japan
Filed Oct. 1, 1980, Ser. No. 192,926
Claims priority, application Japan, May 29, 1980, 55-21024
Term of patent 14 years
Int. Cl. D10—*05*
U.S. Cl. D10—106

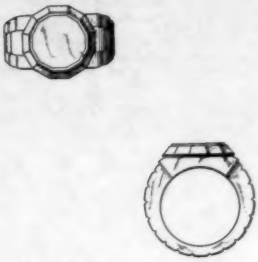


268,013
RING
Alan J. Stimmler, 11640 N. Scottsdale Rd., Scottsdale, Ariz. 85254
Filed Feb. 5, 1981, Ser. No. 231,937
Term of patent 14 years
Int. Cl. D11—*01*
U.S. Cl. D11—27

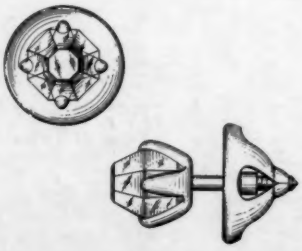
268,014
HELMET RING
William J. Sears, 3013 Pico Blvd., Santa Monica, Calif. 90405, and Gary Hudson, 1658 Kaweah Dr., Pasadena, Calif. 91105
Filed Dec. 22, 1980, Ser. No. 218,649
Term of patent 14 years
Int. Cl. D11—*01*
U.S. Cl. D11—30



268,015
FINGER RING OR SIMILAR ARTICLE
Josef J. Barr, 125 Worth Ave., Palm Beach, Fla. 33480
Filed Jul. 7, 1980, Ser. No. 166,308
Term of patent 14 years
Int. Cl. D11—*01*
U.S. Cl. D11—39

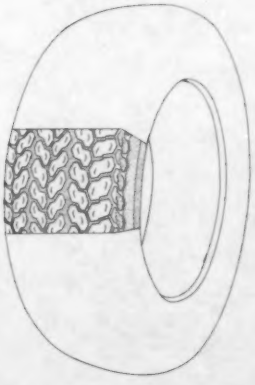


268,016
EARRING
Alvin Block, Bedford, N.Y., assignor to Intimate Jewels, Inc., Katonah, N.Y.
Continuation-in-part of Ser. No. 73,489, Sep. 7, 1979, Pat. No. D. 262,272. This application Sep. 2, 1980, Ser. No. 183,029
Term of patent 14 years
Int. Cl. D11—*01*
U.S. Cl. D11—75

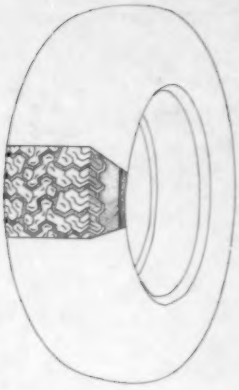


268,017
WALKER
Morton I. Thomas, Nyack, N.Y., assignor to Temco Products, Inc., Passaic, N.J.
Filed Aug. 26, 1980, Ser. No. 181,370
Term of patent 14 years
Int. Cl. D12—*12*
U.S. Cl. D12—130

268,018
TIRE FOR A VEHICLE WHEEL
Douglas J. Major, and Peter R. Marriott, both of Sutton Coldfield, England, assignors to Dunlop Limited, London, England
Filed Jul. 9, 1980, Ser. No. 167,063
Claims priority, application United Kingdom, Feb. 2, 1980, 993438/80
Term of patent 14 years
Int. Cl. D12—*15*
U.S. Cl. D12—146

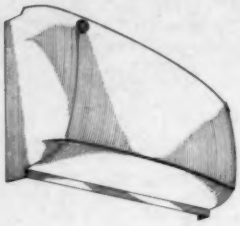


268,019
TIRE FOR A VEHICLE WHEEL
Douglas J. Major; Peter R. Marriott, and Claude A. Hart, all of Sutton Coldfield, England, assignors to Dunlop Limited, London, England
Filed Jul. 10, 1980, Ser. No. 168,413
Claims priority, application United Kingdom, Feb. 2, 1980, 993440/80
Term of patent 14 years
Int. Cl. D12—*15*
U.S. Cl. D12—151

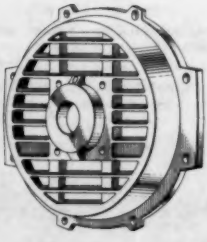


268,020
WINDSHIELD WIPER
Pierre G. Duvoux, Ballainvilliers, France, assignor to Equipements Automobiles Marchal, Issy-les-Moulineux, France
Filed Aug. 13, 1980, Ser. No. 177,715
Claims priority, application France, Feb. 19, 1980, 800407
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—155

268,021
NOSE FAIRING FOR A TRUCK BODY OR THE LIKE
Nathaniel C. Wiley, Jr., and Henry A. Rudkin, Jr., both of Weston, Conn., assignors to Rudkin-Wiley Corporation, Stratford, Conn.
Filed Jul. 22, 1980, Ser. No. 171,042
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—181

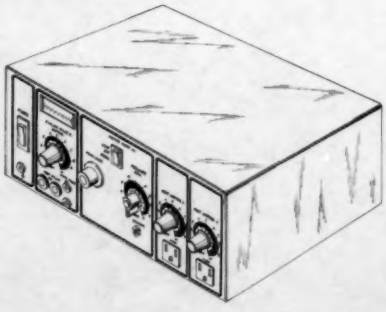


268,022
DYNAMOELECTRIC MACHINE END CAP
Henry G. Lenz, and Earl K. Stewart, both of Schenectady, N.Y., assignors to General Electric Company, Schenectady, N.Y.
Filed May 19, 1980, Ser. No. 150,858
Term of patent 14 years
Int. Cl. D13—*01*
U.S. Cl. D13—3



268,023
BATTERY CHARGER
Jeffrey A. Boyd, Gainesville, Fla., assignor to General Electric Company, Gainesville, Fla.
Filed Mar. 27, 1980, Ser. No. 134,409
Term of patent 14 years
Int. Cl. D13—*02*
U.S. Cl. D13—5

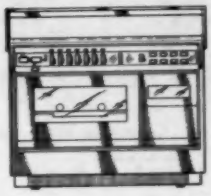
268,024
POWER SUPPLY UNIT
Kenneth C. Litt, and Jean C. Fielder, both of Silver Spring, Md., assignors to Pace Incorporated, Laurel, Md.
Filed Mar. 27, 1980, Ser. No. 134,479
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D13—11



268,025
CONTROL PANEL FOR ELEVATOR SYSTEMS
Ernest M. Bevilaqua, Wilton; Allan L. McCroskery, Weston, both of Conn., and Theodore N. Knerr, New York, N.Y., assignors to Otis Elevator Company, Farmington, Conn.
Filed Feb. 2, 1981, Ser. No. 230,842
Term of patent 14 years
Int. Cl. D10—*06*; D13—*03*
U.S. Cl. D13—35

268,026
CONTROL PANEL FOR ELEVATOR SYSTEMS
Ernest M. Bevilaqua, Wilton; Allan L. McCroskery, Weston, both of Conn., and Theodore N. Knerr, New York, N.Y., assignors to Otis Elevator Company, Farmington, Conn.
Filed Feb. 2, 1981, Ser. No. 230,843
Term of patent 14 years
Int. Cl. D10—*06*; D13—*03*
U.S. Cl. D13—35

268,027
VIDEO TAPE RECORDER
Hiroshi Takashima; Seiji Usami; Wataru Iwahashi, and Hiroshi Ohi, all of Osaka, Japan, assignors to Sharp Corporation, Osaka, Japan
Filed Dec. 23, 1980, Ser. No. 219,591
Claims priority, application Japan, Jul. 18, 1980, 55-29372
Term of patent 14 years
Int. Cl. D14—*01*
U.S. Cl. D14—2



268,028
RECORD PLAYER
Kenji Ekuan, Tokyo, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Japan
Continuation of Ser. No. 71,187, Aug. 31, 1979. This application Feb. 4, 1980, Ser. No. 118,209
Claims priority, application Japan, Mar. 1, 1979, 54-7889
Term of patent 14 years
Int. Cl. D14—*01*
U.S. Cl. D14—14

268,029
DATA COLLECTION TERMINAL FOR AUTHORIZATION CONTROL SYSTEM OR THE LIKE
Charles R. Fisher, 34781 Glen Dr., Eastlake, Ohio 44094
Filed Apr. 21, 1980, Ser. No. 142,056
Term of patent 14 years
Int. Cl. D14—*02*
U.S. Cl. D14—107

268,030

FRONT PANEL FOR A KEYBOARD AND DISPLAY UNIT

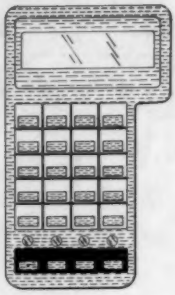
Charles M. Ault, Winchester, Mass., assignor to Termiflex Corporation, Nashua, N.H.

Filed Sep. 5, 1980, Ser. No. 184,348

Term of patent 14 years

Int. Cl. D14—*02;* D18—*01*

U.S. Cl. D14—115



268,031

PORTABLE ELECTRIC SEWING MACHINE

Carlo Zappa, Milan, Italy, assignor to EL CU S.p.A., Milan, Italy

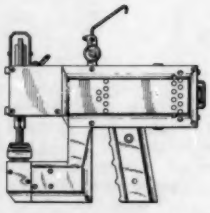
Filed May 14, 1980, Ser. No. 149,835

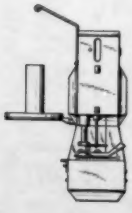
Claims priority, application Italy, Nov. 29, 1979, 23296/79[U]

Term of patent 14 years

Int. Cl. D15—*06*

U.S. Cl. D15—69





268,032

REFRIGERATOR WITH EYE LEVEL CONTROLS

Richard C. Matz; Donald F. Kaminski, both of Sidney, and Raymond H. DeLoye, Houston, all of Ohio, assignors to The Stolle Corporation, Sidney, Ohio

Filed Oct. 6, 1980, Ser. No. 194,607

Term of patent 14 years

Int. Cl. D15—*07*

U.S. Cl. D15—85

268,033

ROBOT ARM

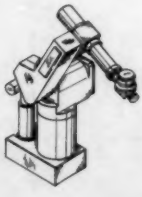
Theodore H. Stackhouse, Cincinnati, Ohio, assignor to Cincinnati Milacron Inc., Cincinnati, Ohio

Filed Dec. 22, 1980, Ser. No. 218,505

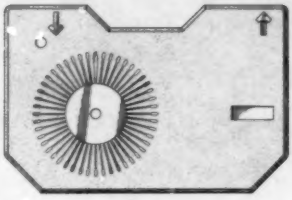
Term of patent 14 years

Int. Cl. D15—*99*

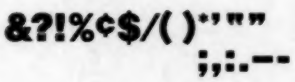
U.S. Cl. D15—199



268,034
RIBBON CARTRIDGE
Marv Van Voy, Canoga Park, Calif., assignor to General Ribbon Corporation, Canoga Park, Calif.
Filed Oct. 6, 1980, Ser. No. 194,062
Term of patent 14 years
Int. Cl. D18—*01*
U.S. Cl. D18—12

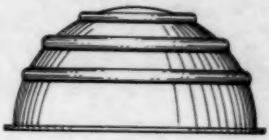


268,035
PRINT FONT
Bruce N. Blackburn, Pelham, N.Y., assignor to Champion International Corporation, Stamford, Conn.
Filed Jan. 22, 1981, Ser. No. 227,207
Term of patent 14 years
Int. Cl. D18—*03*
U.S. Cl. D18—24

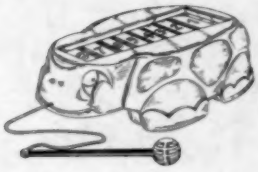


268,036
DART
Bernard J. Cagan, and Kenneth L. McQuary, both of Torrance, Calif., assignors to Placo Products Company, Torrance, Calif.
Filed Feb. 10, 1981, Ser. No. 233,083
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—49

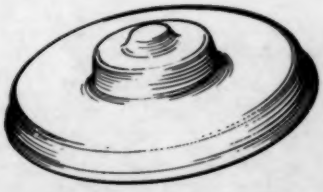
268,037
TOY MOLD OR THE LIKE
David Wiseltier, and Anthony J. Porcelli, both of New York, N.Y., assignors to Martin G. Raskin, New York, N.Y., a part interest
Filed Jan. 7, 1981, Ser. No. 223,135
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—59



268,038
TOY XYLOPHONE
Mel Appel, Nine Nottingham Rd., Livingston, N.J. 07039, and George Kress, Scotch Plains, N.J., assignors to Mel Appel, Livingston, N.J.
Filed Feb. 17, 1981, Ser. No. 235,149
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—64

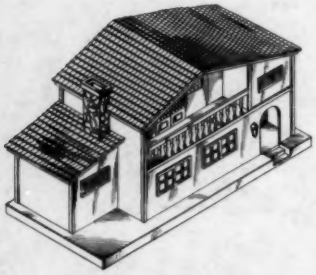


268,039
AERIAL TOY
Richard C. Osborne, 3007 Solimar Beach Dr., Ventura, Calif. 93001
Filed Jan. 15, 1981, Ser. No. 225,379
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—86

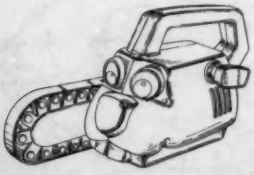


268,040
TOY VANITY CASE
Cheuk S. Ng, Hong Kong, Hong Kong, assignor to Blue Box Toy Factory, Limited, Hong Kong, Hong Kong
Filed Jan. 30, 1981, Ser. No. 230,349
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—109

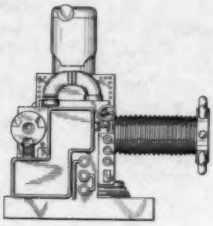
268,041
TOY HOUSE
Cheuk S. Ng, Hong Kong, Hong Kong, assignor to Tai Sang Industrial Co., Ltd., Hong Kong, Hong Kong
Filed Feb. 27, 1981, Ser. No. 239,035
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—114



268,042
TOY CHAIN SAW
Mel Appel, Nine Nottingham Rd., Livingston, N.J. 07039, and George Kress, Scotch Plains, N.J., assignors to Mel Appel, Livingston, N.J.
Filed Feb. 17, 1981, Ser. No. 235,016
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—120

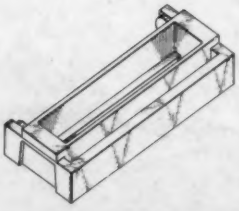


268,043
TOY EXTRUDER
Henry Orenstein, 136 Lakeside Ave., Verona, N.J. 07044
Filed Jun. 13, 1980, Ser. No. 159,052
Term of patent 3½ years
Int. Cl. D21—*01*
U.S. Cl. D21—124

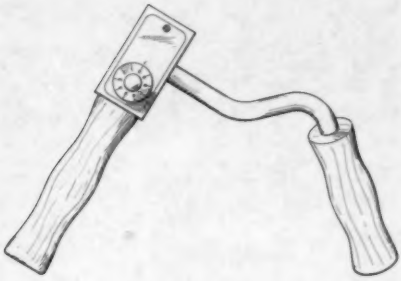


268,044
TOY PRINTING MEMBER
Gary R. Lemmeyer, East Aurora, N.Y., assignor to The Quaker Oats Company, Chicago, Ill.
Filed Jan. 12, 1981, Ser. No. 224,271
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—127

268,045
TOY PRINT HOLDER
Gary R. Lemmeyer, East Aurora, N.Y., assignor to The Quaker Oats Company, Chicago, Ill.
Filed Jan. 12, 1981, Ser. No. 224,293
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—127

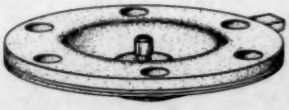


268,046
ROTATIONAL EXERCISER
Donald L. Bell, West Fork, Ark., assignor to Human Performance Systems, Inc., Fayetteville, Ark.
Filed Nov. 21, 1980, Ser. No. 208,922
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D21—198

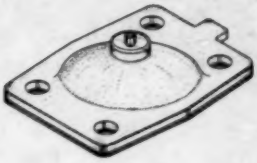


268,047
DUCK DECOY WITH STABILIZING SPONSONS AND KEEL
Chris Fulster, 2810 3rd Ave., Sacramento, Calif. 95818
Filed May 21, 1982, Ser. No. 380,507
Term of patent 14 years
Int. Cl. D22—*05*
U.S. Cl. D22—21

268,048
DIAPHRAGM VALVE
Tomoyuki Ueda, Nobeoka, Japan, assignor to Asahi Yukizai Kogyo Kabushiki Kaisha, Nobeoka, Japan
Filed Apr. 2, 1980, Ser. No. 136,711
Claims priority, application Japan, Oct. 31, 1979, 54-45550; Oct. 31, 1979, 54-45551; Oct. 31, 1979, 54-45552
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—19

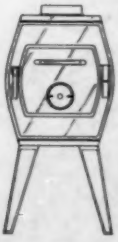


268,049
DIAPHRAGM VALVE
Tomoyuki Ueda, Nobeoka, Japan, assignor to Asahi Yukizai Kogyo Kabushiki Kaisha, Nobeoka, Japan
Filed Apr. 2, 1980, Ser. No. 136,712
Claims priority, application Japan, Oct. 31, 1979, 54-45549
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—19

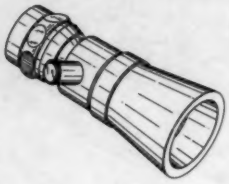


268,050
FORCED AIR WASTE OIL INCINERATOR
Robert V. Albertson, 2100 Shadywood Rd., Wayzata, Minn. 55391
Filed Oct. 14, 1980, Ser. No. 196,939
Term of patent 14 years
Int. Cl.[3] D23—*03*
U.S. Cl. D23—92

268,051
STOVE
Winston J. F. Sorensen, Lonkildevej 5, Lindelse, DK-5900 Rudkobing, Denmark
Filed Nov. 19, 1980, Ser. No. 208,292
Claims priority, application Denmark, May 23, 1980, 407/80
Term of patent 14 years
Int. Cl. D23—*03*
U.S. Cl. D23—97



268,052
SHOWER HEAD
Richard P. Eadie, Westport, Conn., assignor to Vanderburgh Enterprises, Southport, Conn.
Filed Oct. 26, 1981, Ser. No. 314,581
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—35



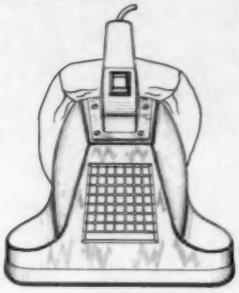
268,053
HEAT DISTRIBUTOR
Joseph A. Kozlowski, 168 Taft La., Windsor Locks, Conn. 06096
Filed Jul. 7, 1980, Ser. No. 166,196
Term of patent 14 years
Int. Cl. D23—*04*
U.S. Cl. D23—151

268,054
SOLARIUM WITH CONNECTING DRESSING ROOM AND TANNING ROOM
Eugene G. Charette, 112 B Collins St., Danvers, Mass. 01923
Filed Jul. 10, 1980, Ser. No. 168,263
Term of patent 14 years
Int. Cl.[3] D24—*01*
U.S. Cl. D24—39

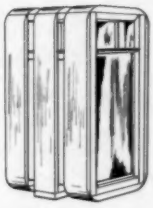
268,055
PORTABLE LAMP
Arthur H. Moore, Fairfield, Conn., assignor to The Bridgeport Metal Goods Manufacturing Company, Bridgeport, Conn.
Filed Oct. 3, 1980, Ser. No. 193,616
Term of patent 14 years
Int. Cl. D26—*05*
U.S. Cl. D26—112

268,056
FEED SUPPLEMENT DISPENSER FOR PIGLETS
Adrian R. Campbell-Kelly, Landingsveien 116, Oslo 7; Hanne Fjelstad, Stockhulmsgata 35, Oslo 5; Lasse Gravås, Von Otkens vei 28, 1430 AS; Erik Reinemo, Robert Millars vei 7, Oslo 11, and Johan Sekkenes, Peter Møllers vei 1, Olso 5, all of Norway
Filed Apr. 8, 1980, Ser. No. 138,447
Claims priority, application Norway, Oct. 8, 1979, 7960513
Term of patent 14 years
Int. Cl. D30—*03*
U.S. Cl. D30—15

268,057
HAND SUCTION CLEANER
Nora R. Harmon, Cleveland, Ohio, assignor to Health-Mor Inc., Chicago, Ill.
Filed Dec. 17, 1980, Ser. No. 217,137
Term of patent 14 years
Int. Cl. D15—*05*
U.S. Cl. D32—18

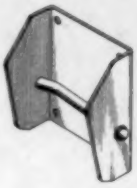


268,058
LITTER CONTAINER
Joseph E. Kinnebrew, IV, 13300 Beckwith Dr., NE., Lowell, Mich. 49331
Filed Mar. 27, 1979, Ser. No. 24,479
Term of patent 14 years
Int. Cl. D7—*05*
U.S. Cl. D34—01

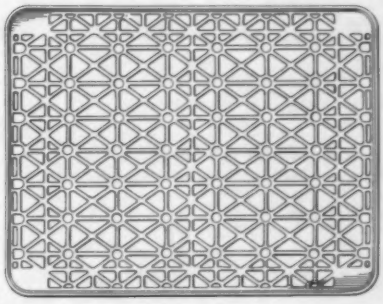


268,059
TRASH CONTAINER
Donald R. Kracke, 704 Silver Spur Rd., Rolling Hills Estates, Calif. 90274
Filed Sep. 2, 1980, Ser. No. 182,931
Term of patent 14 years
Int. Cl. D7—*05*
U.S. Cl. D34—4

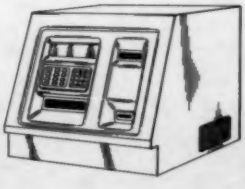
268,060
HOISTING BRACKET FOR AN EXCHANGE PLATFORM FRAME OR THE LIKE
Leo Sutela, Turku, Finland, assignor to Oy Partek Ab, Finland
Filed Aug. 15, 1980, Ser. No. 178,367
Claims priority, application Finland, Apr. 11, 1980, 80289
Term of patent 14 years
Int. Cl. D12—*05*
U.S. Cl. D34—35



268,061
TOTE TRAY
Emil L. Munch, and John D. Von Benken, both of Cincinnati, Ohio, assignors to Nestier Corporation, Cincinnati, Ohio
Filed Jun. 19, 1979, Ser. No. 50,062
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D34—40



268,062
BANKING MACHINE TERMINAL
Gary S. Chance, Garland, Tex., assignor to Docutel Corporation, Irving, Tex.
Filed Oct. 28, 1980, Ser. No. 202,017
Term of patent 14 years
Int. Cl. D14—*02*
U.S. Cl. D99—28

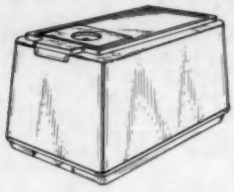


268,063

FIRE RESISTANT CONTAINER

David O. Chase, Skaneateles, N.Y., assignor to John D. Brush & Company, Inc., Rochester, N.Y.

Filed Oct. 31, 1980, Ser. No. 202,863
Term of patent 14 years
Int. Cl. D6—*04*
U.S. Cl. D99—28



LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 22ND DAY OF FEBRUARY, 1983

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

AB Celleco: *See*—
Frykhult, Rune H., 4,374,729, Cl. 210-232.000.

Abe, Mitsunobu; Yoshida, Ikushi; Matsuo, Munetsugu; and Hayakawa, Hiroshi, to Nippon Steel Corporation. Process for producing deep-drawing cold rolled steel strips by short-time continuous annealing. 4,374,682, Cl. 148-12.00C.

Abex Corporation: *See*—
Wilcox, Jack W., 4,374,632, Cl. 418-267.000.

Abodishish, Hani A.; and Ritchey, Robert W., to Wyoming Mineral Corporation. Raffinate wash of second cycle solvent in the recovery of uranium from phosphate rock. 4,374,806, Cl. 423-10.000.

Adachi, Hideuari: *See*—
Sindo, Tiuzi; Obara, Tadashi; and Adachi, Hidenari, 4,374,827, Cl. 424-92.000.

Adachi, Tomohiro: *See*—
Ikeda, Eiji; Adachi, Tomohiro; Ito, Yoshihiro; Yamada, Ryozo; Taga, Akio; and Takashima, Shigeo, 4,374,695, Cl. 156-293.000.

Adams, Richard C.; and Waisala, Steven J., to Standard Oil Company, The. High nitrile copolymer latex coating. 4,374,948, Cl. 524-516.000.

Adicoff, Arnold: *See*—
Henry, Ronald A.; and Adicoff, Arnold, 4,374,777, Cl. 260-414.000.

Advanced Technology, Inc.: *See*—
Intrater, Josef; and Bertoldo, Gene, 4,374,903, Cl. 428-627.000.

Agrico Chemical Company: *See*—
O'Neill, Padraic S., 4,374,810, Cl. 423-160.000.

Ahl, Bernhard. Device for lifting sliding molds along steel bars for the construction of concrete buildings and the like. 4,374,634, Cl. 425-65.000.

Ahlquist, C. Norman; Hu, Yaw Wen; Schoen, Peter F.; and Poenisch, Paul A., to Intel Corporation. High contrast alignment marker for integrated circuit fabrication. 4,374,915, Cl. 430-22.000.

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Zacho, Per G.; and Ahrendsen, Kjeld, 4,375,029, Cl. 219-493.000.

Aica Kogyo Co., Ltd.: *See*—
Ikeda, Eiji; Adachi, Tomohiro; Ito, Yoshihiro; Yamada, Ryozo; Taga, Akio; and Takashima, Shigeo, 4,374,695, Cl. 156-293.000.

Air Products and Chemicals, Inc.: *See*—
Peterson, John O. H.; and Fales, Howard S., 4,375,002, Cl. 564-445.000.

Aizawa, Kimio; and Nagata, Takashi, to Matsushita Electric Industrial Co., Ltd. Terminal substrate for a quartz vibrating device. 4,375,041, Cl. 310-348.000.

Akagawa, Masaki: *See*—
Sugimoto, Osamu; Akagawa, Masaki; and Hayashi, Yukichi, 4,374,557, Cl. 194-100.00A.

Akagi, Akio: *See*—
Senda, Jihei; Inoue, Yoshihiro; Uenishi, Toshiaki; Harada, Hidefumi; Nakata, Kouji; Akagi, Akio; and Yamasaki, Takanori, 4,374,676, Cl. 106-303.000.
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Akahane, Shoji: *See*—
Tomioka, Kentaro; Hirota, Kazuo; Muramatsu, Hiroaki; and Akahane, Shoji, 4,374,936, Cl. 523-116.000.

Akashi, Toshihiro: *See*—
Shiratsuchi, Masami; Shimizu, Noboru; Shigyo, Hiromichi; Kyotani, Yoshinori; Kunieda, Hisashi; Kawamura, Kiyoshi; Sato, Seiichi; Akashi, Toshihiro; Nagakura, Masahiko; Sawada, Naotoshi; and Uchida, Yasumi, 4,374,840, Cl. 424-263.000.

Akkerman, Neil H.; and Christensen, Bruce D., to Baker CAC. Pilot with cantilevered spring. 4,374,487, Cl. 92-95.000.

Aktiebolaget Bofors: *See*—
Bratt, Sven-Erik, 4,374,605, Cl. 339-143.00R.

Akzona Incorporated: *See*—
Verhelst, Willem F.; and Wiersum, Ulfert E., 4,374,938, Cl. 523-124.000.

Albin, Michel, to Framatome. Method of handling fuel assemblies and rods when reloading a nuclear reactor. 4,374,801, Cl. 376-264.000.

Albright, Jay D.: *See*—
Dusza, John P.; and Albright, Jay D., 4,374,988, Cl. 544-281.000.

Aldrich, Paul H., to Hercules Incorporated. Stable dispersions of fortified rosin. 4,374,673, Cl. 106-212.000.

Alexander, Jeffrey C.: *See*—
Zahedi, Karim; and Alexander, Jeffrey C., 4,374,652, Cl. 55-6.000.

Alexander, Roy P., to Olin Corporation. Novel package for water sanitizing chemical and method for preparing it. 4,374,563, Cl. 206-499.000.

Allain, Ronald J.; and Smith, Gerald D., to Nalco Chemical Company. Method for the hydrogenation of nitriles to primary amines. 4,375,003, Cl. 564-492.000.

Allcock, Harry R.; and Harris, Paul J., to United States of America, Navy. Alkylated phosphazene oligomers and method of preparation. 4,374,781, Cl. 260-543.0PN.

Allen, Craig E.: *See*—
Canterino, Peter J.; and Allen, Craig E., 4,374,690, Cl. 156-229.000.

Allied Corporation: *See*—
Anello, Louis G.; Van Der Puy, Michael; Robinson, Martin A.; and Eibeck, Richard E., 4,374,782, Cl. 260-544.00F.
Prevorsek, Dusan C.; DeBona, Bruce T.; and Kesten, Yali, 4,374,973, Cl. 528-191.000.
Rothwell, Ronald E.; Rowan, Hugh H.; and Dunbar, James J., 4,374,960, Cl. 525-436.000.
Stephenson, Robert L.; and Pfeiffer, Robert C., 4,374,449, Cl. 24-230.0AL.

Allis-Chalmers Corporation: *See*—
Boone, Jerry C.; and Randall, Richard L., 4,374,628, Cl. 403-162.000.
Garside, Peter G., 4,374,650, Cl. 48-202.000.

Allison, Debra L.: *See*—
Doherty, James B.; and Allison, Debra L., 4,374,997, Cl. 548-539.000.

Aloia, Romeo R.: *See*—
Toothill, Richard B.; and Aloia, Romeo R., 4,374,947, Cl. 524-398.000.

Alonte, Antonio D.: *See*—
Protacio, Alfredo C.; Navarro, Ramon V.; Rio, Eliseo M., Jr.; Alonte, Antonio D.; and Pascual, Felix J., 4,374,507, Cl. 123-1.00A.

Alsthom-Atlantique: *See*—
Roger, Gillet, 4,375,043, Cl. 310-258.000.

Alsthom-Unelec: *See*—
Daussin, Bernard; and Hennemann, Jean, 4,375,022, Cl. 200-148.00R.

Altex Scientific, Inc.: *See*—
Berick, Alan C.; and Magnussen, Haakon T., Jr., 4,374,620, Cl. 356-246.000.

Aluminum Company of America: *See*—
Ray, Siba P., 4,374,761, Cl. 252-519.000.

American Cyanamid Company: *See*—
Dusza, John P.; and Albright, Jay D., 4,374,988, Cl. 544-281.000.
Joseph, Joseph P.; and Bernstein, Seymour, 4,374,831, Cl. 424-180.000.
Joseph, Joseph P.; and Bernstein, Seymour, 4,374,832, Cl. 424-180.000.
Robertson, Allan J., 4,374,780, Cl. 260-502.40R.
Singh, Balwant; and Novak, Robert W., 4,374,771, Cl. 260-239.30R.
Singh, Balwant; and Schaefer, Frederic C., 4,374,987, Cl. 544-260.000.
Toothill, Richard B.; and Aloia, Romeo R., 4,374,947, Cl. 524-398.000.

American District Telegraph Company: *See*—
Guscott, John K., 4,375,034, Cl. 250-342.000.

American Hoechst Corporation: *See*—
Walls, John E., 4,374,710, Cl. 204-33.000.
Wanat, Stanley F.; and Hsieh, Shane, 4,374,920, Cl. 430-331.000.

American Home Products Corporation: *See*—
McGregor, William H., 4,374,765, Cl. 260-112.50R.
Stein, Reinhardt P., 4,374,779, Cl. 260-465.00E.

American Hospital Supply Corporation: *See*—
Grossmann, Frederic; and Sims, Larry A., 4,374,520, Cl. 128-132.00D.

American Standard Inc.: *See*—
Carucci, Alberto; and Moore, Bernard C., 4,374,635, Cl. 425-441.000.

AMP Incorporated: *See*—
Bright, Edward J.; Cherry, Hitesh; Dehoff, Robert E.; Fedder, James L.; and Williams, Tom R., 4,374,607, Cl. 339-253.00R.
Crowley, Daniel J.; and Stine, Jon D., 4,375,071, Cl. 360-104.000.
Kanoff, George, 4,374,483, Cl. 89-1.00B.
Lathrop, John C., 4,374,606, Cl. 339-177.00R.

Anderson, Gene S., to Belden Corporation. Fiber optic cable. 4,374,608, Cl. 350-96.230.

Anderson, Paul S.; Christy, Marcia E.; Evans, Ben E.; and Remy, David C., to Merck & Co., Inc. Dibenzo[a,d]cyclooctes-5,12-(and 6,12)-imines. 4,374,838, Cl. 424-256.000.

Anderson, Tore N., to Microdyne Corporation. Polarization rotatable antenna feed. 4,375,052, Cl. 333-21.00A.

Anello, Louis G.; Van Der Puy, Michael; Robinson, Martin A.; and Eibeck, Richard E., to Allied Corporation. Synthesis of trifluoroacetyl fluoride. 4,374,782, Cl. 260-544.00F.

Anfimov, Alexandr F.: *See*—
Azbukin, Vladimir G.; Balandin, Jury F.; Gorynin, Igor V.; Gluskin, Lev Y.; Zvezdin, Jury I.; Ignatenko, Alexandr G.; Krasnov, Alexandr N.; Melekhov, Rostislav K.; Osipova, Inna S.; Pavlov, Valery N.; Khokhlov, Alexandr A.; Stepanov, Ivan A.; Anfimov, Alexandr F.; Ardentov, Vasily V.; Burmakin, Viktor M.; Ignatov, Viktor A.; Rokhlin, Eduard A.; and Zhitkov, Vladimir V., 4,374,680, Cl. 148-2.000.

Antlfinger, George J., to B F Goodrich Company, The. Polyolefin nonwovens with high wet strength retention bonded with vinyl chloride copolymers. 4,374,894, Cl. 428-288.000.

Antol, Ronald F.: *See*—
Wojcik, Thaddeus A.; Kobuck, Richard M.; and Antol, Ronald F., 4,374,462, Cl. 51-411.000.

Aoi Chemical Inc.: *See*—
Takemura, Yoshifumi; and Miyazaki, Hirokazu, 4,374,946, Cl. 524-271.000.

Arai, Mamoru; Haneishi, Tatsuo; and Nakajima, Mutsuo, to Sankyo Company, Limited. Macrolide antibiotic. 4,374,764, Cl. 260-112.50R.

Arai, Nobushige, to Sharp Kabushiki Kaisha. Self-cleaning coating compositions and cooking apparatus coated therewith. 4,374,754, Cl. 252-430.000.

Arai, Yoshihiro: *See*—
Kudo, Kazushige; Arai, Yoshihiro; Tsurutani, Ryoichi; and Kiriyama, Shun-ichi, 4,374,961, Cl. 525-439.000.

Ardentov, Vasily V.: *See*—
Azbukin, Vladimir G.; Balandin, Jury F.; Gorynin, Igor V.; Gluskin, Lev Y.; Zvezdin, Jury I.; Ignatenko, Alexandr G.; Krasnov, Alexandr N.; Melekhov, Rostislav K.; Osipova, Inna S.; Pavlov, Valery N.; Khokhlov, Alexandr A.; Stepanov, Ivan A.; Anfimov, Alexandr F.; Ardentov, Vasily V.; Burmakin, Viktor M.; Ignatov, Viktor A.; Rokhlin. Eduard A.; and Zhitkov, Vladimir V., 4,374,680, Cl. 148-2.000.

Arens, Robert P., to Minnesota Mining and Manufacturing Company. Oil-repellent microvoid-imaging material. 4,374,889, Cl. 428-207.000.

Argento, Benny J.; Walker, Wellington E., deceased (by Walker, Maxine M., executrix); and Fiato, Rocco A., to Union Carbide Corporation. Catalyst and process for the conversion of methanol to acetaldehyde. 4,374,752, Cl. 252-429.00R.

Armstrong, Douglas, to Coulter Electronics, Inc. Blood cell volume monitoring. 4,374,644, Cl. 436-63.000.

Armstrong, William W., to Pfizer Inc. Sulfonamide compositions. 4,374,826, Cl. 424-80.000.

Arndt, Gerhard: *See*—
Gerke, Peter; Arndt, Gerhard; Roescheisen, Friedrich; and Bruentrup, Heinrich, 4,375,098, Cl. 370-110.100.

Arneth, August P.; and Foshee, Curtis L., to International Business Machines Corp. Method and apparatus of signalling request to send clear to send delay. 4,375,103, Cl. 375-109.000.

Arsac, Andre; Ducarre, Michel; Grosbois, Jean; and Nener, Thomas, to Rhone-Poulenc-Textile. Textiles with improved conducting properties and processes for their manufacture. 4,374,893, Cl. 428-263.000.

Arzoumanidis, Gregory G.; and Darragh, Kirk V., to Stauffer Chemical Company. Process for producing hypo-phosphorous acid (H_3PO_2) and non-transition metal hypophosphites. 4,374,816, Cl. 423-304.000.

Asahi Kasei Kogyo Kabushiki Kaisha: *See*—
Fujiwara, Takashi; Kajita, Shuji; Matsushita, Tetsuo; and Manabe, Seiichi, 4,374,977, Cl. 528-348.000.
Fujiwara, Takashi; Kajita, Shuji; Matsushita, Tetsuo; and Manabe, Seiichi, 4,374,978, Cl. 528-348.000.
Ogawa, Shinsaku, 4,374,711, Cl. 204-98.000.

Asahi Kogaku Kogyo Kabushiki Kaisha: *See*—
Kobayashi, Takumi, 4,374,614, Cl. 354-216.000.

ASEA Aktiebolag: *See*—
Magnusson, Harry; Tallback, Gote; and Wennberg, Ake, 4,375,076, Cl. 363-68.000.

Ashburn, Donald G.; and Steady, Glendon T., to United States Steel Corporation. ABS Composition containing coal tar pitch. 4,374,944, Cl. 524-66.000.

Ashby, Bruce A.; and Schroeter, Siegfried H., to General Electric Co. Ultraviolet light absorbing agents and compositions and articles containing same. 4,374,674, Cl. 106-287.120.

Ashour, Tahsin A.: *See*—
Veillette, Norman T.; Pian, Charles H. C.; and Ashour, Tahsin A., 4,374,918, Cl. 430-115.000.

Asoshina, Eishi: *See*—
Shimizu, Masato; Asoshina, Eishi; Tominaga, Takashi; and Muguruma, Tadahiro, 4,374,890, Cl. 428-212.000.

Atsukawa, Masumi; Shinoda, Naoharu; Tatani, Atsushi; and Shimizu, Taku, to Mitsubishi Jukogyo Kabushiki Kaisha. Process for stack gas treatment. 4,374,812, Cl. 423-242.000.

Austin, Lowell W.: *See*—
Smith, John R.; Bingle, William D.; and Austin, Lowell W., 4,374,902, Cl. 428-621.000.

Automated Industrial Systems, Inc.: *See*—
Carlson, William J., 4,375,025, Cl. 219-121.0LH.

Azbukin, Vladimir G.; Balandin, Jury F.; Gorynin, Igor V.; Gluskin, Lev Y.; Zvezdin, Jury I.; Ignatenko, Alexandr G.; Krasnov, Alexandr N.; Melekhov, Rostislav K.; Osipova, Inna S.; Pavlov, Valery N.; Khokhlov, Alexandr A.; Stepanov, Ivan A.; Anfimov, Alexandr F.; Ardentov, Vasily V.; Burmakin, Viktor M.; Ignatov, Viktor A.; Rokhlin, Eduard A.; and Zhitkov, Vladimir V. Corrosion-resistant weldable martensitic stainless steel, process for the manufacture thereof and articles. 4,374,680, Cl. 148-2.000.

B F Goodrich Company, The: *See*—
Antlfinger, George J., 4,374,894, Cl. 428-288.000.

Baba, Kazuo, to Olympus Optical Co., Ltd. Ultrasonic diagnostic apparatus for endoscope. 4,374,525, Cl. 128-660.000.

Badertscher, Ernest: *See*—
Gasser, Rupert J.; and Badertscher, Ernest, 4,374,860, Cl. 426-28.000.

Badische Corporation: *See*—
Burlosse, Dominick A., 4,374,641, Cl. 8-557.000.

Badmin, John S.; and Mears, Barry J., to Shell Oil Company. Pyrethroid pesticidal composition. 4,374,833, Cl. 424-225.000.

Baglio, Joseph A.: *See*—
Palilla, Frank C.; Gaudet, Gary G.; and Baglio, Joseph A., 4,374,819, Cl. 423-570.000.

Baker CAC: *See*—
Akkerman, Neil H.; and Christensen, Bruce D., 4,374,487, Cl. 92-95.000.

Baker, Kenneth D.: *See*—
El-Shazly, Mohamed F.; Baker, Kenneth D.; and Rymwid, Yvonne, 4,374,876, Cl. 427-443.100.

Baker Perkins Holdings Ltd.: *See*—
Morton, David C., 4,374,559, Cl. 198-429.000.

Bakewell, Frank W.; and Stricker, Charles D., to United States Steel Corporation. System for electrolytic cleaning of metal wire in loop form. 4,374,719, Cl. 204-202.000.

Balandin, Jury F.: *See*—
Azbukin, Vladimir G.; Balandin, Jury F.; Gorynin, Igor V.; Gluskin, Lev Y.; Zvezdin, Jury I.; Ignatenko, Alexandr G.; Krasnov, Alexandr N.; Melekhov, Rostislav K.; Osipova, Inna S.; Pavlov, Valery N.; Khokhlov, Alexandr A.; Stepanov, Ivan A.; Anfimov, Alexandr F.; Ardentov, Vasily V.; Burmakin, Viktor M.; Ignatov, Viktor A.; Rokhlin, Eduard A.; and Zhitkov, Vladimir V., 4,374,680, Cl. 148-2.000.

Balimann, Walter: *See*—
Hufnagel, Willi; Blanc, Maurice; and Balimann, Walter, 4,374,864, Cl. 426-594.000.

Banks, Eddie D., to Boeing Company, The. Aerial cargo delivery system. 4,374,578, Cl. 244-137.00R.

Barnabeo, Austin E., to Union Carbide Corporation. Crosslinkable compositions based on alkylene-alkyl acrylate copolymers containing a polyol, an organo titanate and a molecular sieve. 4,374,958, Cl. 525-384.000.

Barnes, Dale R., to Fayette Manufacturing Corporation. Windmill speed limiting system utilizing hysteresis. 4,374,631, Cl. 416-23.000.

Barnes-Hind Pharmaceuticals, Inc.: *See*—
Sibley, Murray J.; and Nite, Rebecca F., 4,374,745, Cl. 252-106.000.

Barrington, Burchus Q., to Halliburton Company. Sleeve valve. 4,374,583, Cl. 251-324.000.

Barry, Patrick D.; Lowrey, Robert E.; and Dobbs, Kenneth. Recording and evaluating instrument and method for teacher evaluation. 4,375,080, Cl. 364-551.000.

Bartow, Richard J., to Clark Equipment Company. Upright for lift truck. 4,374,550, Cl. 187-9.00E.

BASF Aktiengesellschaft: *See*—
Braha, Alexandru; Daucher, Hans; Hess, Klaus; Kroetzsch, Peter; Merkel, Helmut; Roedl, Roland; Schwaegerl, Walter; and Stickel, Richard, 4,374,730, Cl. 210-608.000.
Decker, Walter; Schoen, Ernst; Grabhoefer, Herbert; and Weyland, Peter, 4,374,935, Cl. 521-173.000.
Eckert, Guenter; Wuertele, Lothar; Petersen, Harro; Goeckel, Ulrich; and Fischer, Kurt, 4,374,872, Cl. 427-338.000.
Merger, Franz; Towae, Friedrich; and Harder, Wolfgang, 4,375,000, Cl. 560-25.000.

Battelle Development Corporation: *See*—
Zega, Bogdan, 4,374,722, Cl. 204-298.000.

Baucom, Keith B.; and Hamon, Burrell N., to United States of America, Air Force. Method for the preparation of poly (carbonoyl fluoride) oligomers. 4,374,715, Cl. 204-158.00R.

Baumann, Heinz, to Siemens Aktiengesellschaft. X-Ray diagnostic generator. 4,375,105, Cl. 378-092.000.

Baumgarten, Arthur A.: *See*—
Glogolja, Miroslav; and Baumgarten, Arthur A., 4,375,073, Cl. 361-91.000.

Baxter, Ronald D.; and Freud, Paul J., to Leeds & Northrup Company. Thin film resistance thermometer device with a predetermined temperature coefficent of resistance and its method of manufacture. 4,375,056, Cl. 338-25.000.

Baxter Travenol Laboratories, Inc.: *See*—
Brown, Richard I.; and Bilstad, Arnold C., 4,374,731, Cl. 210-637.000.

Bayer Aktiengesellschaft: *See*—
Brandt, Horst; Hornle, Reinhold; Buchele, Richard; and Wiegner, Dieter, 4,374,642, Cl. 8-639.000.
Schmidt, Manfred; Freitag, Dieter; and Bottenbruch, Ludwig, 4,374,971, Cl. 528-167.000.

Beck, Bernhard: *See*—
Fratzer, Gerhard; and Beck, Bernhard, 4,374,803, Cl. 422-176.000.

Becker, Sharon L. Energy saving window screen guide device. 4,374,536, Cl. 160-84.00R.

Beckman Instruments, Inc.: *See*—
Crosby, John B., 4,375,038, Cl. 307-492.000.

Bekker, Marthinus J.; and Hall, Douglas J. M., to DRW Corporation. Compensator for muzzle climb. 4,374,484, Cl. 89-14.00C.

Belden Corporation: *See*—
Anderson, Gene S., 4,374,608, Cl. 350-96.230.

Bell, Cecil R., Jr.; Nakhle, George D.; and Edwards, A. Russell, to Consolidated Foods Corporation. Garment toe closing assembly. 4,374,501, Cl. 112-121.150.

Bell Telephone Laboratories, Incorporated: *See—*
Bjorkholm, John E.; and White, Jonathan C., 4,375,033, Cl. 250-251.000.
Keilp, John P.; Moore, Warren F.; and Sirbu, Victor, 4,374,795, Cl. 264-152.000.
Maxemchuk, Nicholas F., 4,375,083, Cl. 364-900.000.
Nahory, Robert E.; and Tell, Benjamin, 4,374,867, Cl. 427-38.000.
Bendix Corporation, The: *See—*
Colpaert, James J., 4,374,554, Cl. 188-106.00A.
Hemmer, Valentine J.; Piscitelli, R. Amelia; Fischer, Charles P.; and Washburn, James C., 4,374,604, Cl. 339-59.00R.
Warren, Gilbert G.; and Johnson, Colin A., 4,374,450, Cl. 445-7.000.
Bengtsson, Erik A.: *See—*
Collin, Per H.; and Bengtsson, Erik A., 4,374,663, Cl. 75-26.000.
Benninger, Gary N.: *See—*
Peck, Raymond E.; Petresh, Randall P.; and Benninger, Gary N., 4,374,553, Cl. 188-73.450.
Beranger, Serge: *See—*
Favier, Colette; Pinhas, Henri; Beranger, Serge; and Pascal, Jean-Claude, 4,374,835, Cl. 424-250.000.
Favier, Colette; Pinhas, Henri; Beranger, Serge; and Pascal, Jean-Claude, 4,374,837, Cl. 424-253.000.
Berge, Charles T.; Mack, Mark P.; and Starks, Charles M., to Conoco Inc. Magnesium disiloxide compounds. 4,374,755, Cl. 252-431.00R.
Berick, Alan C.; and Magnussen, Haakon T., Jr., to Altex Scientific, Inc. Photometric flow cell. 4,374,620, Cl. 356-246.000.
Bernstein, Seymour: *See—*
Joseph, Joseph P.; and Bernstein, Seymour, 4,374,831, Cl. 424-180.000.
Joseph, Joseph P.; and Bernstein, Seymour, 4,374,832, Cl. 424-180.000.
Bertoldo, Gene: *See—*
Intrater, Josef; and Bertoldo, Gene, 4,374,903, Cl. 428-627.000.
Betz Laboratories, Inc.: *See—*
Snyder, William R.; and Feuerstein, Diane, 4,374,733, Cl. 210-701.000.
Bezman, Susan A., to Chevron Research Company. Oxygenated fuel dehydration. 4,374,647, Cl. 44-56.000.
Bhatia, Chandrakant: *See—*
Toman, George M.; Bock, Thomas J.; and Bhatia, Chandrakant, 4,374,502, Cl. 112-162.000.
Bhatia, Yog R., to Henkel Corporation, The. Anaerobic compositions. 4,374,940, Cl. 523-176.000.
Bilstad, Arnold C.: *See—*
Brown, Richard I.; and Bilstad, Arnold C., 4,374,731, Cl. 210-637.000.
Bingle, William D.: *See—*
Smith, John R.; Bingle, William D.; and Austin, Lowell W., 4,374,902, Cl. 428-621.000.
Birkenbach, Alfred; and Franke, Helmut, to ITT Industries, Inc. Mechanical actuating device for a spot-type disc brake. 4,374,551, Cl. 188-71.900.
Bjorkholm, John E.; and White, Jonathan C., to Bell Telephone Laboratories, Incorporated. Universal detector for atomic and molecular beams. 4,375,033, Cl. 250-251.000.
Black & Decker Inc.: *See—*
Sauerwein, William D., 4,375,040, Cl. 310-239.000.
Blahna, Nadezda; and Fischer, Bruno, to International Standard Electric Corporation. Method of manufacturing correction filter for exposing screens of color-picture tubes. 4,374,866, Cl. 427-10.000.
Blanc, Maurice: *See—*
Hufnagel, Willi; Blanc, Maurice; and Balimann, Walter, 4,374,864, Cl. 426-594.000.
Blenner, Donald R.; and Boenig, Herman V., to Lord Corporation. Method for bonding elastomers to metals. 4,374,694, Cl. 156-272.600.
Blesser, Barry, to Pencept, Inc. Multistage digital filtering utilizing several criteria. 4,375,081, Cl. 364-724.000.
Blitstein, John; and Kathrein, Donald, to T. C. Manufacturing Company, Inc. Corrosion-resistant coating composition containing hollow microballoons. 4,374,874, Cl. 427-379.000.
Blount, David H. Process for the production of polyamide silicate resinous products. 4,374,976, Cl. 528-339.500.
Board of Reagents, The University of Texas System: *See—*
Folkers, Karl; Kubiak, Teresa M.; Stepien, Henryk M.; and Sakura, Naoki, 4,374,828, Cl. 424-177.000.
Bock, Edward C.: *See—*
Spinelli, Richard A.; and Bock, Edward C., 4,374,619, Cl. 355-57.000.
Bock, Thomas J.: *See—*
Toman, George M.; Bock, Thomas J.; and Bhatia, Chandrakant, 4,374,502, Cl. 112-162.000.
Boden, Richard M., to International Flavors & Fragrances Inc. Aliphatic branched olefin dioxolanes. 4,374,998, Cl. 549-430.000.
Boden, Richard M., to International Flavors & Fragrances Inc. Branched chain olefinic alcohols, thiols, esters and ethers, organoleptic uses thereof, processes for preparing same and intermediates therefor. 4,375,005, Cl. 568-878.000.
Boeing Company, The: *See—*
Banks, Eddie D., 4,374,578, Cl. 244-137.00R.
Boenig, Herman V.: *See—*
Blenner, Donald R.; and Boenig, Herman V., 4,374,694, Cl. 156-272.600.
Boers, Paulus M.: *See—*
Bouma, Herman; Bouwhuis, Dominicus G.; Boers, Paulus M.; and Jacobs, Josephus C., 4,375,058, Cl. 340-146.30Z.
Boksay, Istvan: *See—*
Weber, Rolf-Ortwin; Soder, Alfont; and Boksay, Istvan, 4,374,990, Cl. 544-376.000.
Bolich, Raymond E., Jr.; Hartsough, Lloyd B.; and Cothran, Philip E., to Proctor & Gamble Company, The. Hair conditioning compositions. 4,374,825, Cl. 424-70.000.
Bolon, Donald A.; and Gorczyca, Thomas B., to General Electric Company. Coating solution of polyetherimide oligomers. 4,374,972, Cl. 528-185.000.
Book Covers, Inc.: *See—*
Carter, Leewood C.; Neary, Robin P.; and Curtis, Jay C., 4,374,441, Cl. 412-3.000.
Boone, Jerry C.; and Randall, Richard L., to Allis-Chalmers Corporation. Joint for securing a sickle drive pin. 4,374,628, Cl. 403-162.000.
Bornard, Guy: *See—*
Lebeau, Louis; and Bornard, Guy, 4,374,703, Cl. 162-253.000.
Bornstaeger, Stephan R., to Kimberly-Clark Corporation. Nonwoven laminate for recreation fabric. 4,374,888, Cl. 428-198.000.
Bottenbruch, Ludwig: *See—*
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Bottner, Harald: *See—*
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Bouma, Herman; Bouwhuis, Dominicus G.; Boers, Paulus M.; and Jacobs, Josephus C., to U.S. Philips Corporation. Device for reading a printed code and for converting this code into an audio signal. 4,375,058, Cl. 340-146.30Z.
Bouwhuis, Dominicus G.: *See—*
Bouma, Herman; Bouwhuis, Dominicus G.; Boers, Paulus M.; and Jacobs, Josephus C., 4,375,058, Cl. 340-146.30Z.
Boyer, Michael R. Ham slicing machine. 4,374,490, Cl. 99-538.000.
Brabbs, William J.: *See—*
Hong, Charles A.; and Brabbs, William J., 4,374,862, Cl. 426-94.000.
Bradley, Joel C. Undulating prismoid modules. 4,374,542, Cl. 165-166.000.
Braha, Alexandru; Daucher, Hans; Hess, Klaus; Kroetzsch, Peter; Merkel, Helmut; Roedl, Roland; Schwaegerl, Walter; and Stickel, Richard, to BASF Aktiengesellschaft. Process and apparatus for the biological purification of sewage. 4,374,730, Cl. 210-608.000.
Branca, Quirico; Fischli, Albert E.; and Szeste, Andre, to Hoffmann-La Roche Inc. Triazolo-benzodiazepine derivatives. 4,374,773, Cl. 260-245.500.
Brandenstein, Manfred: *See—*
Olschewski, Armin; Brandenstein, Manfred; Walter, Lothar; and Ernst, Horst M., 4,374,556, Cl. 192-98.000.
Brandrup, Johannes: *See—*
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Brandt, Horst; Hornle, Reinhold; Buchele, Richard; and Wiegner, Dieter, to Bayer Aktiengesellschaft. Dyestuff mixtures, a process for their preparation and a process for dyeing hydrophobic fibres. 4,374,642, Cl. 8-639.000.
Bratt, Sven-Erik, to Aktiebolaget Bofors. An assembly of an electrical connector and pyrotechnic igniter. 4,374,605, Cl. 339-143.00R.
Braun Aktiengesellschaft: *See—*
Tittert, Curt, 4,374,528, Cl. 132-37.00R.
Breault, Richard D.; and Goller, Glen J., to United Technologies Corporation. Ribbed electrode substrates. 4,374,906, Cl. 429-44.000.
Bridgestone Tire Company Limited: *See—*
Yotsumoto, Toshihiro; and Koyama, Kazuo, 4,374,962, Cl. 525-442.000.
Brigham, William D.: *See—*
Zwick, Eugene B.; Nguyen, Dung D.; Brigham, William D.; and Hoffman, Kenneth, 4,374,637, Cl. 431-183.000.
Bright, Edward J.; Cherry, Hitesh; Dehoff, Robert E.; Fedder, James L.; and Williams, Tom R., to AMP Incorporated. Electrical pin and socket connector. 4,374,607, Cl. 339-253.00R.
Briley, Patrick B., to Hybrid Energy, Inc. Temperature conditioning system suitable for use with a solar energy collection and storage apparatus or a low temperature energy source. 4,374,467, Cl. 62-238.100.
Bristol-Myers Company: *See—*
Cundall, Robert L.; and Walker, Derek, 4,374,982, Cl. 544-16.000.
Lim, Gary M. F.; and Endo, Masaki, 4,374,994, Cl. 548-251.000.
British Nuclear Fuels Limited: *See—*
Stewart, Roy, 4,374,787, Cl. 264-0.500.
Brockman, Thomas H. Cable testing system. 4,374,473, Cl. 73-158.000.
Brodie, Michael. Adjustable socket with detachable or lockable engaging handle component. 4,374,481, Cl. 81-115.000.
Brot, Nathan; and Weissbach, Herbert, to Hoffmann-La Roche Inc. Novel reductase. 4,374,928, Cl. 435-68.000.
Brown, Michael A.; and Kalivretenus, Chris A., to United States of America, Navy. Adapter assembly for flat trajectory flight. 4,374,577, Cl. 244-3.210.
Brown, Michael L.: *See—*
Stortroen, Don J.; and Brown, Michael L., 4,374,491, Cl. 100-73.000.
Brown, Paul L.; Lee, Chi-Long; and Maxson, Myron T., to Dow Corning Corporation. Low temperature silicone gel. 4,374,967, Cl. 528-15.000.
Brown, Richard I.; and Bilstad, Arnold C., to Baxter Travenol Laboratories, Inc. Method and apparatus for obtaining a desired rate of plasma collection from a membrane plasmapheresis filter. 4,374,731, Cl. 210-637.000.

Brown, Robert J. S.: *See—*
Thompson, Don D.; Brown, Robert J. S.; and Runge, Richard J., 4,375,090, Cl. 367-73.000.

Bruentrup, Heinrich: *See—*
Gerke, Peter; Arndt, Gerhard; Roescheisen, Friedrich; and Bruentrup, Heinrich, 4,375,098, Cl. 370-110.100.

Buchele, Richard: *See—*
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Bullen, Ronald S.; and Lillies, Allan T., to L.H.B. Investment, Inc. Carbon dioxide fracturing process and apparatus. 4,374,545, Cl. 166-280.000.

Burlone, Dominick A., to Badische Corporation. Polymeric color concentrates for thermoplastic polymeric materials. 4,374,641, Cl. 8-557.000.

Burmakin, Viktor M.: *See—*
Azbukin, Vladimir G.; Balandin, Jury F.; Gorynin, Igor V.; Gluskin, Lev Y.; Zvezdin, Jury I.; Ignatenko, Alexandr G.; Krasnov, Alexandr N.; Melekhov, Rostislav K.; Osipova, Inna S.; Pavlov, Valery N.; Khokhlov, Alexandr A.; Stepanov, Ivan A.; Anfimov, Alexandr F.; Ardentov, Vasily V.; Burmakin, Viktor M.; Ignatov, Viktor A.; Rokhlin, Eduard A.; and Zhitkov, Vladimir V., 4,374,680, Cl. 148-2.000.

Burns & Roe, Inc.: *See—*
Rao, Subbarao N., 4,374,649, Cl. 48-192.000.

Burton, Clark R., to Compair, Inc. Classification instrument. 4,374,459, Cl. 33-174.00C.

C. Desaga GmbH Nachf. Erich Fecht: *See—*
Vesterberg, Olof A. Y., 4,374,723, Cl. 204-299.00R.

Cain, David E., to Halliburton Company. Pressurized density measuring apparatus. 4,374,474, Cl. 73-433.000.

California Institute of Technology: *See—*
Gupta, Amitava; Ingham, John D.; and Yavrouian, Andre H., 4,374,955, Cl. 525-281.000.

Callander, Douglas D.: *See—*
Massey, Fred L.; and Callander, Douglas D., 4,374,949, Cl. 524-720.000.

Callicott, Robert H., to Procter & Gamble Company, The. Method and composition to inhibit staining of porcelain surfaces by manganese. 4,374,572, Cl. 239-37.000.

Campbell, John R.: *See—*
Loucks, George R.; and Campbell, John R., 4,374,959, Cl. 525-394.000.

Canada, Atomic Energy of, Limited: *See—*
Chuang, Karl T.; Roett, Maurice F.; and Lemon, Francis W., 4,374,907, Cl. 429-57.000.

Canada, Her Majesty the Queen in right of, as represented by the Minister of National Defence: *See—*
Hsia, Jen C., 4,374,857, Cl. 424-317.000.

Canon Kabushiki Kaisha: *See—*
Horyu, Sakae, 4,375,060, Cl. 340-365.00R.
Kitamura, Takashi, 4,375,063, Cl. 346-108.000.
Kitamura, Takashi, 4,375,067, Cl. 346-160.000.
Matsumura, Susumu; and Suzuki, Takashi, 4,374,612, Cl. 354-53.000.

Canterino, Peter J.; and Allen, Craig E., to Mobil Oil Corporation. Multidirectionally oriented films. 4,374,690, Cl. 156-229.000.

Carl Still GmbH and Co. KG, Firma: *See—*
Karger, Robert; and Dungs, Horst, 4,374,811, Cl. 423-240.000.

Carlson, William J., to Automated Industrial Systems, Inc. Laser strip marker. 4,375,025, Cl. 219-121.0LH.

Carlson, William L., Jr.: *See—*
Nelson, Virgil W.; and Carlson, William L., Jr., 4,375,047, Cl. 318-48.000.

Carra', Sergio: *See—*
Scotti, Carlo; Pace, Renato C.; and Carra', Sergio, 4,374,675, Cl. 106-300.000.

Carter, Leewood C.; Neary, Robin P.; and Curtis, Jay C., to Book Covers, Inc. Method of making a book cover and pocket element therefor. 4,374,441, Cl. 412-3.000.

Carucci, Alberto; and Moore, Bernard C., to American Standard Inc. Casting installations. 4,374,635, Cl. 425-441.000.

Casio Computer Co., Ltd.: *See—*
Kashio, Toshio, 4,374,622, Cl. 368-74.000.

Cassella Aktiengesellschaft: *See—*
Tappe, Horst; Mayer, Hans; and Hofmann, Klaus, 4,374,640, Cl. 8-526.000.

Castro, Carlos A., to Texas Instruments Incorporated. Process for forming HgCoTe alloys selectively by IR illumination. 4,374,678, Cl. 148-1.500.

Cea, Theresa: *See—*
Glass, Michael; and Cea, Theresa, 4,374,858, Cl. 426-5.000.

Celanese Corporation: *See—*
Roberts, Donald R.; Kritchevsky, Gina R.; and Hannon, Martin J., 4,374,879, Cl. 428-35.000.

Celentino, James L.: *See—*
Smith, Roger R.; and Celentino, James L., 4,374,593, Cl. 280-491.00E.

Cendre, Andre: *See—*
Nguyen, Jean-Paul; Laval, Emmanuel; and Cendre, Andre, 4,374,547, Cl. 175-45.000.

Centre Technique de l'Industrie des Papiers, Cartons et Celluloses: *See—*
Lebeau, Louis; and Bornard, Guy, 4,374,703, Cl. 162-253.000.

Cerracchio, Nicholas, to Video Education, Inc. System for formatting data on video tape for high accuracy recovery. 4,375,101, Cl. 371-69.000.

Certified Chemical & Equipment Co.: *See—*
Copperman, Marcus, 4,374,446, Cl. 15-415.00A.

Ceshkovsky, Ludwig: *See—*
Dakin, Wayne R.; and Ceshkovsky, Ludwig, 4,375,091, Cl. 369-32.000.

Chagnon, Mark S.; Lester, Joseph E.; and Natansohn, Samuel, to GTE Laboratories Incorporated. Process for the separation of molybdenum values from tungsten values. 4,374,809, Cl. 423-54.000.

Chamberlin, Kim S., to Eastman Kodak Company. Process for the preparation of the sulfate salt of 2-amino-5-alkylthio-1,3,4-thiadiazoles. 4,374,993, Cl. 548-141.000.

Chambers, Charles W., Jr., to Tellabs, Inc. Improved electronic hybrid circuit. 4,375,015, Cl. 179-170.0NC.

Charles, Harold. Electro conductive polymer compositions and new materials found useful in their preparation. 4,374,760, Cl. 252-518.000.

Charles of the Ritz Group Ltd.: *See—*
Puchalski, Eugene; Donahue, Frances A.; and Dixon, Richard P., 4,374,766, Cl. 260-123.700.

Chemplex Company: *See—*
Pullukat, Thomas J.; and Hoff, Raymond E., 4,374,753, Cl. 252-429.00B.

Chen, Catherine S. H., to Mobil Oil Corporation. Water soluble surfactant mobility control agent in oil recovery. 4,374,740, Cl. 252-8.55D.

Chen, Gilbert K.; and Holmes, Timothy L., to Koch Engineering Company, Inc. Reverse-jet scrubber apparatus and method. 4,374,813, Cl. 423-242.000.

Cherry, Hitesh: *See—*
Bright, Edward J.; Cherry, Hitesh; Dehoff, Robert E.; Fedder, James L.; and Williams, Tom R., 4,374,607, Cl. 339-253.00R.

Chevron Research Company: *See—*
Bezman, Susan A., 4,374,647, Cl. 44-56.000.
McCoy, Charles S., 4,374,654, Cl. 55-71.000.
Sweeney, W. Alan, 4,374,648, Cl. 44-56.000.
Thompson, Don D.; Brown, Robert J. S.; and Runge, Richard J., 4,375,090, Cl. 367-73.000.

Chisso Corporation: *See—*
Inukai, Takashi; Sato, Hideo; Inoue, Hiromichi; and Fukui, Masahiro, 4,374,748, Cl. 252-299.660.

Chisso Engineering Co. Ltd.: *See—*
Sawai, Kiyoshi; and Kawase, Takao, 4,374,705, Cl. 203-19.000.

Chou, Yungnien J.; and Saam, John C., to Dow Corning Corporation. Method for preparing polyacetals and polyketals by emulsion polymerization. 4,374,953, Cl. 525-153.000.

Christensen, Bruce D.: *See—*
Akkerman, Neil H.; and Christensen, Bruce D., 4,374,487, Cl. 92-95.000.

Christensen, Burton G.; Heck, James V.; and Szymonifka, Michael J., to Merck & Co., Inc. 6-(1-Hydroxyethyl)cyclonocardicin. 4,374,848, Cl. 424-274.000.

Christensen, Burton G.; and Heck, James V., to Merck & Co., Inc. 6-Amidocyclonocardicins. 4,374,849, Cl. 424-274.000.

Christopher, Todd J.: *See—*
Kelleher, Kevin C.; and Christopher, Todd J., 4,375,094, Cl. 369-43.000.

Christy, Marcia E.: *See—*
Anderson, Paul S.; Christy, Marcia E.; Evans, Ben E.; and Remy, David C., 4,374,838, Cl. 424-256.000.

Chuang, Karl T.; Roett, Maurice F.; and Lemon, Francis W., to Canada, Atomic Energy of, Limited. Gaseous hydrogen and oxygen combining and condensing device. 4,374,907, Cl. 429-57.000.

Ciba-Geigy AG: *See—*
Tzikas, Athanassios, 4,374,989, Cl. 544-339.000.

Ciba-Geigy Corporation: *See—*
Evans, Samuel; Rasberger, Michael; and Gegner, Eberhard, 4,374,742, Cl. 252-48.400.
Gruenfeld, Norbert, 4,374,847, Cl. 424-274.000.

Ciba-Geigy Ltd.: *See—*
Mollet, Herbert; and Wyrsch, Dieter, 4,374,914, Cl. 430-15.000.

Cincinnati Milacron Inc.: *See—*
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Cities Service Co.: *See—*
Newcombe, Jack, 4,374,734, Cl. 210-708.000.

Citizen Watch Co., Ltd.: *See—*
Murata, Toshio, 4,374,624, Cl. 368-250.000.

CKD Corporation: *See—*
Hayakawa, Masatoshi; and Sakazaki, Yoshitami, 4,375,024, Cl. 219-56.000.

Claiborne, Barbara T., to Dixie Yarns, Inc. System for preventing static electricity on laundered textile materials. 4,374,639, Cl. 8-137.000.

Clark Equipment Company: *See—*
Bartow, Richard J., 4,374,550, Cl. 187-9.00E.

Clark, Gary T.: *See—*
Fleischer, Jean C.; Clark, Gary T.; and Maner, Ronald J., 4,374,768, Cl. 260-158.000.

Clawson, Lawrence G.: *See—*
Massey, Lester G.; Clawson, Lawrence G.; and Syska, Andrew J., 4,374,540, Cl. 165-1.000.

Cocco, Eugene R.; Pflugrad, William G.; and Small, Byron L., to Western Electric Company, Incorporated. Tapered retractile cords. 4,375,012, Cl. 174-69.000.

Coe, Noel N.: *See—*
Doonan, David F.; and Coe, Noel N., 4,374,985, Cl. 544-190.000.

Cohen, Stanley N.: *See*—
Sminsky, John J.; and Cohen, Stanley N., 4,374,927, Cl. 435-68.000.
Cohn, Alan E., to Goodyear Tire & Rubber Company, The. Method of constructing tire and identification tag therefor. 4,374,461, Cl. 40-2.00R.
Cointot, Denis; Langlois, Patrice; and de Passoz, Guy, to Societe Anonyme de Telecommunications. Device for digit rate reduction of PCM-signals. 4,375,013, Cl. 179-15.55R.
Cole, Bernard M. Automatically expanding pop-up decoration. 4,374,877, Cl. 428-9.000.
Cole, William E.: *See*—
Sakhuja, Ravinder K.; Cole, William E.; and Pavlakis, Dimitris, 4,374,660, Cl. 65-335.000.
Colgate-Palmolive: *See*—
Fine, Ralph; and Weiss, Sidney, 4,374,822, Cl. 424-49.000.
Colgate-Palmolive Company: *See*—
Harvey, Kenneth; and Hayes, Harry, 4,374,823, Cl. 424-52.000.
Collin, Per H.; and Bengtsson, Erik A., to Stora Kopparbergs Bergslags AB. Method and apparatus for reducing an iron oxide material in a fluidized bed. 4,374,663, Cl. 75-26.000.
Colombo, Enzo, to Continua International Continuous Casting S.p.A. Plate mold for the continuous casting of metals. 4,374,539, Cl. 164-443.000.
Colpaert, James J., to Bendix Corporation, The. Duo-servo drum brake. 4,374,554, Cl. 188-106.00A.
Combette, Marc; and Ollivier, Jean, to Olin Corporation. Powder actuated piston tool with power adjustment. 4,374,567, Cl. 227-10.000.
Combs, Daniel J., to Occidental Chemical Corporation. Process for plating polymeric substrates. 4,374,709, Cl. 204-30.000.
Comer, Robert C., to Toro Company, The. Attachment for rotary lawn mower. 4,374,465, Cl. 56-12.700.
Cominco Ltd.: *See*—
Micklethwaite, William F. H., 4,374,684, Cl. 148-13.100.
Compaan, Klaas: *See*—
de Haan, Maarten R.; Compaan, Klaas; and Hissel, Leopold H., 4,375,088, Cl. 365-234.000.
Compair, Inc.: *See*—
Burton, Clark R., 4,374,459, Cl. 33-174.00C.
Compensating Tension Controls, Inc.: *See*—
Ryan, Ralph L., 4,374,576, Cl. 242-58.400.
Conoco Inc.: *See*—
Berge, Charles T.; Mack, Mark P.; and Starks, Charles M., 4,374,755, Cl. 252-431.00R.
Conrad, Robert. Fireplace air distribution system. 4,374,515, Cl. 126-143.000.
Consolidated Foods Corporation: *See*—
Bell, Cecil R., Jr.; Nakhle, George D.; and Edwards, A. Russell, 4,374,501, Cl. 112-121.150.
Consolidated Natural Gas Service Company, Inc.: *See*—
Massey, Lester G.; Clawson, Lawrence G.; and Syska, Andrew J., 4,374,540, Cl. 165-1.000.
Container Corporation of America: *See*—
Howlett, Robert J., 4,374,560, Cl. 206-44.00R.
Continental Packaging Company, Inc.: *See*—
Hekal, Ihab M., 4,374,714, Cl. 204-131.000.
Continua International Continuous Casting S.p.A.: *See*—
Colombo, Enzo, 4,374,539, Cl. 164-443.000.
Cooke, Anson R.: *See*—
Fritz, Charles D.; Evans, Wilbur F.; and Cooke, Anson R., 4,374,661, Cl. 71-86.000.
Copperman, Marcus, to Certified Chemical & Equipment Co. Vacuum nozzle for carpeted stair treads and risers. 4,374,446, Cl. 15-415.00A.
Coral Chemical Company: *See*—
Schueneman, John E., 4,374,681, Cl. 148-6.14R.
Coran, Aubert Y.; and Patel, Raman, to Monsanto Company. Olefin polymer modified with substituted maleamic acid. 4,374,956, Cl. 525-296.000.
Cornaby, David T.: *See*—
Halvorsen, Eric J.; and Cornaby, David T., 4,375,069, Cl. 360-49.000.
Cornez, Andre: *See*—
Piedboeuf, Albert; Polard, Victor; and Cornez, Andre, 4,374,873, Cl. 427-349.000.
Corning Glass Works: *See*—
Courbin, Philippe; Kerko, David J.; Mazeau, Jean P.; and Morse, David L., 4,374,931, Cl. 501-13.000.
Cothran, Philip E.: *See*—
Bolich, Raymond E., Jr.; Hartsough, Lloyd B.; and Cothran, Philip E., 4,374,825, Cl. 424-70.000.
Coulter Electronics, Inc.: *See*—
Armstrong, Douglas, 4,374,644, Cl. 436-63.000.
Courbin, Philippe; Kerko, David J.; Mazeau, Jean P.; and Morse, David L., to Corning Glass Works. Photochromic glass suitable for ophthalmic applications. 4,374,931, Cl. 501-13.000.
Crosby, John B., to Beckman Instruments, Inc. RMS Converter. 4,375,038, Cl. 307-492.000.
Crosaley, Roger, to John Wyeth and Brother Limited. Certain arylaliphatictho-pyridine type compounds. 4,374,992, Cl. 546-298.000.
Crowley Daniel J.; and Stine, Jon D., to AMP Incorporated. Mounting means for magnetic read head. 4,375,071, Cl. 360-104.000.
Crump, Eldon E.: *See*—
Thigpen, Ben B.; Crump, Eldon E.; and Shave, David G., 4,375,089, Cl. 367-20.000.
Cubic Western Data: *See*—
Miller, Gregory E.; and Toth, John E., 4,374,564, Cl. 209-583.000.
Cundall, Robert L.; and Walker, Derek, to Bristol-Myers Company. Cepham compounds. 4,374,982, Cl. 544-16.000.
Cuprinol Limited: *See*—
Hilditch, Edward A.; Hambling, Robert E.; Sparks, Colin R.; and Walker, David A., 4,374,852, Cl. 424-289.000.
Curtis, Jay C.: *See*—
Carter, Leewood C.; Neary, Robin P.; and Curtis, Jay C., 4,374,441, Cl. 412-3.000.
Cusano, Dominic A.; Swank, Robert K.; and White, Philip J., to General Electric Company. Index-matched phosphor scintillator structures. 4,374,749, Cl. 252-301.360.
CXA Ltd./CXA Ltee: *See*—
Davitt, Alan L.; and Yuill, Kenneth A., 4,374,686, Cl. 149-21.000.
Cycles Peugeot: *See*—
Lacroix, Bernard, 4,374,549, Cl. 180-207.000.
Czupryna, Gary: *See*—
Natansohn, Samuel; and Czupryna, Gary, 4,374,713, Cl. 204-109.000.
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Kaneki, Satoru; Kikuchi, Yuzi; and Sasaki, Yoji, 4,374,912, Cl. 430-5.000.
Dakin, Wayne R.; and Ceshkovsky, Ludwig, to Discovision Associates. Method and apparatus for information retrieval from an optically readable storage medium. 4,375,091, Cl. 369-32.000.
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Jespersen, Aksel; and Eriksen, Peter A., 4,375,048, Cl. 318-484.000.
Zacho, Per G.; and Ahrendsen, Kjeld, 4,375,029, Cl. 219-493.000.
Darragh, Kirk V.: *See*—
Arzoumanidis, Gregory G.; and Darragh, Kirk V., 4,374,816, Cl. 423-304.000.
Data General Corporation: *See*—
Williams, James B., 4,375,077, Cl. 363-91.000.
Dathe, Joachim, to Siemens Aktiengesellschaft. Method for encapsulating components with cases and an encapsulation provided by the method. 4,375,008, Cl. 174-17.050.
Daucher, Hans: *See*—
Braha, Alexandru; Daucher, Hans; Hess, Klaus; Kroetzsch, Peter; Merkel, Helmut; Roedl, Roland; Schwaegerl, Walter; and Stickel, Richard, 4,374,730, Cl. 210-608.000.
Daussin, Bernard; and Hennemann, Jean, to Alsthom-Unelec. Circuit breaker fitted with a device for indicating a short circuit. 4,375,022, Cl. 200-148.00R.
Davey, Donald G., to Owens-Illinois, Inc. Multiple gob shearing apparatus. 4,374,659, Cl. 65-334.000.
David Manufacturing Company: *See*—
Stille, Larry, 4,374,621, Cl. 366-261.000.
David, Tom. Condiment grinder-dispenser. 4,374,574, Cl. 241-169.100.
Davies, Roderick D.: *See*—
Scott, David B.; Davies, Roderick D.; and See, Yee-Chaung, 4,374,700, Cl. 156-656.000.
Davitt, Alan L.; and Yuill, Kenneth A., to CXA Ltd./CXA Ltee. Delay composition for detonators. 4,374,686, Cl. 149-21.000.
Davy McKee Aktiengesellschaft: *See*—
Koschinek, Gunter; and Wandel, Dietmar, 4,374,797, Cl. 264-210.300.
Dayen, Leonid, to Horton Manufacturing Co., Inc. Pivoted lever caliper brake. 4,374,552, Cl. 188-72.900.
DeBona, Bruce T.: *See*—
Prevorsek, Dusan C.; DeBona, Bruce T.; and Kesten, Yali, 4,374,973, Cl. 528-191.000.
Decker, Walter; Schoen, Ernst; Grabhoefer, Herbert; and Weyland, Peter, to BASF Aktiengesellschaft. Process for the preparation of flexible polyurethane foams employing polyester-polyether polyol mixtures. 4,374,935, Cl. 521-173.000.
Deets, Gary L.: *See*—
Lee, Yoon C., deceased; Deets, Gary L.; and Trementozzi, Quirino A., 4,374,951, Cl. 525-73.000.
Degussa Aktiengesellschaft: *See*—
Fratzer, Gerhard; and Beck, Bernhard, 4,374,803, Cl. 422-176.000.
Kleemann, Axel; and Samson, Marc, 4,374,995, Cl. 548-309.000.
de Haan, Maarten R.; Compaan, Klaas; and Hissel, Leopold H., to U.S. Philips Corporation. Optically readable record carrier with track variations which provide clock and tracking signals and apparatus for recording and/or reproducing data from such a record carrier. 4,375,088, Cl. 365-234.000.
Dehoff, Robert E.: *See*—
Bright, Edward J.; Cherry, Hitesh; Dehoff, Robert E.; Fedder, James L.; and Williams, Tom R., 4,374,607, Cl. 339-253.00R.
de Passoz, Guy: *See*—
Cointot, Denis; Langlois, Patrice; and de Passoz, Guy, 4,375,013, Cl. 179-15.55R.
Desai, Jaydev D.; and Moffatt, William G., to United States of America, Navy. Gold based electrical materials. 4,374,668, Cl. 420-507.000.
Descamps, Marcel; Urbain, Marcel, deceased; Urbain, Claire, legal representative; Urbain, Jacques J. Z., legal representative; Urbain, Jean P. M. C., legal representative; and Urbain, Nadine C. J., legal representative, to S. A. Labaz N.V. Pyridoxine derivatives, and use in therapeutics. 4,374,841, Cl. 424-263.000.
Detroit Edison Company, The: *See*—
Funston, Joseph; Krell, William C.; and Zimmer, Franklin V., 4,374,672, Cl. 106-97.000.
Devanney, Raymond H., to Veeder Industries Inc. Extended range variator conversion mechanism. 4,375,030, Cl. 235-61.00L.
Devine, Thomas M., Jr., to General Electric Company. Stabilized ferritic stainless steel for preheater and reheater equipment applications. 4,374,666, Cl. 75-126.00D.

De Vizzi, Francesco: *See—*
Pardini, Franco P.; and De Vizzi, Francesco, 4,375,021, Cl. 200-147.00B.

Diaz, William J. Extension tool. 4,374,480, Cl. 81-57.300.

Dickie, Ray A.; and Holubka, Joseph W., to Ford Motor Company. Alkaline resistant organic coatings for corrosion susceptible substrates II. 4,374,965, Cl. 525-510.000.

Discovision Associates: *See—*
Dakin, Wayne R.; and Ceshkovsky, Ludwig, 4,375,091, Cl. 369-32.000.
Holmes, John R., 4,374,636, Cl. 425-589.000.

Dixie Yarns, Inc.: *See—*
Claiborne, Barbara T., 4,374,639, Cl. 8-137.000.

Dixon, Richard P.: *See—*
Puchalski, Eugene; Donahue, Frances A.; and Dixon, Richard P., 4,374,766, Cl. 260-123.700.

Dobbs, Kenneth: *See—*
Barry, Patrick D.; Lowrey, Robert E.; and Dobbs, Kenneth, 4,375,080, Cl. 364-551.000.

Doherty, James B.; and Allison, Debra L., to Merck & Co., Inc. Process for the preparation of zomepirac and related compounds. 4,374,997, Cl. 548-539.000.

Donahue, Frances A.: *See—*
Puchalski, Eugene; Donahue, Frances A.; and Dixon, Richard P., 4,374,766, Cl. 260-123.700.

Doonan, David F.; and Coe, Noel N., to Olin Corporation. Hydrated alkali metal dichloroisocyanurate and its production. 4,374,985, Cl. 544-190.000.

Dorey II, John K.; and Huneke, James T., to Western Electric Company, Inc. Selective metal etch technique. 4,374,869, Cl. 427-97.000.

Dotz, Karl H., to Hoffmann-La Roche Inc. Process for preparing vitamin K. 4,374,775, Cl. 260-396.00K.

Dow Chemical Company, The: *See—*
Frisch, Kurt C., Jr., 4,374,969, Cl. 528-69.000.
Garrou, Philip E., 4,374,999, Cl. 549-453.000.

Dow Corning Corporation: *See—*
Brown, Paul L.; Lee, Chi-Long; and Maxson, Myron T., 4,374,967, Cl. 528-15.000.
Chou, Yungnien J.; and Saam, John C., 4,374,953, Cl. 525-153.000.

Drapkin, Herbert, to Perma-Comb Systems, Inc. Honeycomb. 4,374,440, Cl. 6-10.000.

Drauglis, Edmund; Wielonski, Roy F.; and Sliemers, Francis A., to General Motors Corporation. Plasma polymerized interfacial coatings for improved adhesion of sputtered bright metal on plastic. 4,374,717, Cl. 204-192.00C.

DRW Corporation: *See—*
Bekker, Marthinus J.; and Hall, Douglas J. M., 4,374,484, Cl. 89-14.00C.

Ducarre, Michel: *See—*
Arsac, Andre; Ducarre, Michel; Grosbois, Jean; and Nener, Thomas, 4,374,893, Cl. 428-263.000.

Dudgeon, Charles D., to General Electric Company. Polymerization initiator compositions. 4,374,751, Cl. 252-426.000.

Dugan, William P., to General Dynamics, Pomona Division. Fine line circuitry probes and method of manufacture. 4,374,708, Cl. 204-11.000.

Duh, Ben, to Goodyear Tire & Rubber Company, The. Process for the production of high molecular weight polyester. 4,374,975, Cl. 528-272.000.

Dunbar, James J.: *See—*
Rothwell, Ronald E.; Rowan, Hugh H.; and Dunbar, James J., 4,374,960, Cl. 525-436.000.

Dungs, Horst: *See—*
Karger, Robert; and Dungs, Horst, 4,374,811, Cl. 423-240.000.

Du Pont de Nemours, E. I., and Company: *See—*
Guenter, Thomas E., 4,374,820, Cl. 423-588.000.
Mahr, Tibor G., 4,374,898, Cl. 428-447.000.
Marcus, Sanford M., 4,375,007, Cl. 136-256.000.
Robinson, Ivan M., 4,374,970, Cl. 528-79.000.

Durant, Graham J.; Ganellin, Charon R.; and Sach, George S., to SmithKline & French Laboratories Limited. Pharmacologically active 1,3-bis[(2-heterocyclyl-methyl-thio)ethyl)ethyl)guanidino]alkane derivatives. 4,374,839, Cl. 424-263.000.

Dusza, John P.; and Albright, Jay D., to American Cyanamid Company. 4-Heteroarylimidazo-[1,5-A]pyrimidines. 4,374,988, Cl. 544-281.000.

Dwyer Instruments, Inc.: *See—*
Hestich, John, 4,374,475, Cl. 73-736.000.

E. Beaudrey & Co. Societe Anonyme: *See—*
Jackson, Philip, 4,374,736, Cl. 210-783.000.

E. R. Squibb & Sons, Inc.: *See—*
Glavan, Kenneth A.; and Kronauge, James F., 4,374,821, Cl. 424-4.000.

Easter, James M., II. Controlled sludge composting system. 4,374,804, Cl. 422-184.000.

Eastman Kodak Company: *See—*
Chamberlin, Kim S., 4,374,993, Cl. 548-141.000.
Fleischer, Jean C.; Clark, Gary T.; and Maner, Ronald J., 4,374,768, Cl. 260-158.000.
Giles, Ralph R.; and Weaver, Max A., 4,374,769, Cl. 260-187.000.
Hines, Stephen P., 4,374,611, Cl. 353-27.00R.
Hyatt, John A.; and Kashdan, David S., 4,374,770, Cl. 260-207.100.
Lelental, Mark; and Goncher, Gary M., 4,374,916, Cl. 430-31.000.
Marcus, Michael A., 4,375,042, Cl. 310-357.000.
Pacifici, James G.; Newland, Gordon C.; and Moore, Howard G., 4,374,716, Cl. 204-159.190.
Snoke, Roy E.; and Goodhue, Charles T., 4,374,930, Cl. 435-190.000.
Weaver, Max A.; and Fleischer, Jean C., 4,374,767, Cl. 260-158.000.

Eaton Corporation: *See—*
Hamilton, Stephen R., 4,374,881, Cl. 428-36.000.

Echaburu, Jose J.: *See—*
Everlith, Edward A.; and Echaburu, Jose J., 4,374,590, Cl. 273-326.000.

Eckert, Guenter; Wuertele, Lothar; Petersen, Harro; Goeckel, Ulrich; and Fischer, Kurt, to BASF Aktiengesellschaft. Casein coatings for leather insolubilized with alkoxy alkyl ureas. 4,374,872, Cl. 427-338.000.

Edwards, A. Russell: *See—*
Bell, Cecil R., Jr.; Nakhle, George D.; and Edwards, A. Russell, 4,374,501, Cl. 112-121.150.

EFB Inc.: *See—*
Zahedi, Karim; and Alexander, Jeffrey C., 4,374,652, Cl. 55-6.000.

Eibeck, Richard E.: *See—*
Anello, Louis G.; Van Der Puy, Michael; Robinson, Martin A.; and Eibeck, Richard E., 4,374,782, Cl. 260-544.00F.

Eichler, Jurgen; Herz, Claus; Neisius, Karl-Heinz; and Wehner, Gregor, to Merck Patent Gesellschaft mit Beschrankter Haftung. Aromatic-aliphatic ketones useful as photoinitiators. 4,374,984, Cl. 544-80.000.

Eickmann, Karl. Radial piston motor or pump. 4,374,486, Cl. 91-488.000.

Ek, Eric M., to United States of America, Army. Low thermal stress electrode. 4,375,044, Cl. 315-5.380.

Electric Power Research Institute: *See—*
Whitehurst, Darrell D.; Mitchell, Thomas O.; and Farcasiu, Malvina, 4,374,725, Cl. 208-8.0LE.

Electricite de France: *See—*
Roger, Gillet, 4,375,043, Cl. 310-258.000.

El-Shazly, Mohamed F.; Baker, Kenneth D.; and Rymwid, Yvonne, to Occidental Chemical Corporation. Process for the immersion deposition of gold. 4,374,876, Cl. 427-443.100.

Endo, Masaki: *See—*
Lim, Gary M. F.; and Endo, Masaki, 4,374,994, Cl. 548-251.000.

Eriksen, Peter A.: *See—*
Jespersen, Aksel; and Eriksen, Peter A., 4,375,048, Cl. 318-484.000.

Ernst, Horst M.: *See—*
Olschewski, Armin; Brandenstein, Manfred; Walter, Lothar; and Ernst, Horst M., 4,374,556, Cl. 192-98.000.

Escher, Balint; Prince, Dominique; and Romanet, Rene, to Lignes Telegraphiques et Telephoniques. Tantalum capacitors with internal current-limiting means. 4,375,075, Cl. 361-433.000.

Essex Group, Inc.: *See—*
Roberts, Jonathan W., 4,374,892, Cl. 428-233.000.

Etablissements Mesnel: *See—*
Mesnel, Francois, 4,374,880, Cl. 428-36.000.

Ethyl Corporation: *See—*
Jackisch, Philip F., 4,375,006, Cl. 570-105.000.
Li, Hsueh M., 4,374,815, Cl. 423-300.000.

European Space Agency: *See—*
Renner, Udo; and Preukschat, A. Werner, 4,374,579, Cl. 244-158.00R.

Evans, Ben E.: *See—*
Anderson, Paul S.; Christy, Marcia E.; Evans, Ben E.; and Remy, David C., 4,374,838, Cl. 424-256.000.

Evans, Samuel; Rasberger, Michael; and Gegner, Eberhard, to Ciba-Geigy Corporation. Novel lubricant additives. 4,374,742, Cl. 252-48.400.

Evans, Wilbur F.: *See—*
Fritz, Charles D.; Evans, Wilbur F.; and Cooke, Anson R., 4,374,661, Cl. 71-86.000.

Everlith, Edward A.; and Echaburu, Jose J. Mass-produced molded plastic cesta. 4,374,590, Cl. 273-326.000.

Fales, Howard S.: *See—*
Peterson, John O. H.; and Fales, Howard S., 4,375,002, Cl. 564-445.000.

Fan, You-Ling, to Union Carbide Corporation. Water-borne thermoplastic polyhydroxyether compositions. 4,374,875, Cl. 427-386.000.

Farcasiu, Malvina: *See—*
Whitehurst, Darrell D.; Mitchell, Thomas O.; and Farcasiu, Malvina, 4,374,725, Cl. 208-8.0LE.

Faria, Sixdeniel, to GTE Products Corporation. Infrared photoconductor for electrophotography of a copper activated mercury containing cadmium selenide telluride. 4,374,917, Cl. 430-94.000.

Farmers Pride Cheese, Inc.: *See—*
Peterson, Harold J., 4,374,488, Cl. 99-459.000.

Farrissey, William J.; McLaughlin, Alexander; and Waszeciak, Douglas P., to Upjohn Company, The. Process for preparing particleboard. 4,374,791, Cl. 264-39.000.

Fassell, Wayne M., to Michigan Technological University, Board of Control of. Treatment during transport of solid waste. 4,374,499, Cl. 110-243.000.

Favier, Colette; Pinhas, Henri; Beranger, Serge; and Pascal, Jean-Claude, to Laroche-Navarron, S.A. Piperazine derivatives of theophylline. 4,374,835, Cl. 424-250.000.

Favier, Colette; Pinhas, Henri; Beranger, Serge; and Pascal, Jean-Claude, to Laroche Navarron, S.A. Piperazine derivatives of theobromine. 4,374,837, Cl. 424-253.000.

Fayette Manufacturing Corporation: *See—*
Barnes, Dale R., 4,374,631, Cl. 416-23.000.

Fearnside, James T.; and Stephens, Thomas P., to Hewlett-Packard Company. Shielded electrical cable. 4,375,009, Cl. 174-36.000.

Fedder, James L.: *See*—
Bright, Edward J.; Cherry, Hitesh; Dehoff, Robert E.; Fedder, James L.; and Williams, Tom R., 4,374,607, Cl. 339-253.00R.
Ferrar, Carl M., to United Technologies Corporation. Very fine diameter uniform wires. 4,374,901, Cl. 428-607.000.
Feuerstein, Diane: *See*—
Snyder, William R.; and Feuerstein, Diane, 4,374,733, Cl. 210-701.000.
Fiato, Rocco A.: *See*—
Argento, Benny J.; Walker, Wellington E., deceased; and Fiato, Rocco A., 4,374,752, Cl. 252-429.00R.
Fine, Ralph; and Weiss, Sidney, to Colgate-Palmolive. Oral composition. 4,374,822, Cl. 424-49.000.
Fisch, Michael H.: *See*—
Liauw, Koei-Liang; and Fisch, Michael H., 4,374,945, Cl. 524-114.000.
Fischer, Bruno: *See*—
Blahna, Nadezda; and Fischer, Bruno, 4,374,866, Cl. 427-10.000.
Fischer, Charles P.: *See*—
Hemmer, Valentine J.; Piscitelli, R. Amelia; Fischer, Charles P.; and Washburn, James C., 4,374,604, Cl. 339-59.00R.
Fischer, Edgar; Brandrup, Johannes; and Weinlich, Jurgen, to Hoechst Aktiengesellschaft. Process for the manufacture of vinyl chloride polymers by coating polymerization vessels. 4,374,966, Cl. 526-62.000.
Fischer, Kurt: *See*—
Eckert, Guenter; Wuertele, Lothar; Petersen, Harro; Goeckel, Ulrich; and Fischer, Kurt, 4,374,872, Cl. 427-338.000.
Fischli, Albert E.: *See*—
Branca, Quirico; Fischli, Albert E.; and Szente, Andre, 4,374,773, Cl. 260-245.500.
Fisli, Tibor, to Xerox Corporation. Multi-function document processor. 4,374,617, Cl. 355-8.000.
Fleischer, Jean C.; Clark, Gary T.; and Maner, Ronald J., to Eastman Kodak Company. Disperse dyes from 5-amino-4-halo-3-methylisothiazoles. 4,374,768, Cl. 260-158.000.
Fleischer, Jean C.: *See*—
Weaver, Max A.; and Fleischer, Jean C., 4,374,767, Cl. 260-158.000.
Fleshood, William L.: *See*—
Hein, Richard D.; and Fleshood, William L., 4,374,442, Cl. 14-16.500.
Fletcher, James W.: *See*—
Grodzka, Philomena; McCormick, Paul O.; and Fletcher, James W., 4,374,655, Cl. 55-163.000.
Fluor Corporation: *See*—
Schendel, Ronald L.; and Selleck, Frederic T., 4,374,657, Cl. 62-19.000.
FMC Corporation: *See*—
Lehman, Richard L.; and Shepherd, John A., 4,374,817, Cl. 423-319.000.
Folkers, Karl; Kubiak, Teresa M.; Stepien, Henryk M.; and Sakura, Naoki, to Board of Reagents, The University of Texas System. Biologically active thymosnes from the thymus. 4,374,828, Cl. 424-177.000.
Ford, Gregory A., to Phillips Petroleum Company. Vacuum vaporizing method and apparatus. 4,374,476, Cl. 73-23.100.
Ford Motor Company: *See*—
Dickie, Ray A.; and Holubka, Joseph W., 4,374,965, Cl. 525-510.000.
Labana, Santokh S.; and Theodore, Ares N., 4,374,954, Cl. 525-207.000.
Peck, Raymond E.; Petresh, Randall P.; and Benninger, Gary N., 4,374,553, Cl. 188-73.450.
Schechter, Michael M., 4,374,511, Cl. 123-448.000.
Formica Corporation: *See*—
Raghava, Ram S., 4,374,886, Cl. 428-172.000.
Foshee, Curtis L.: *See*—
Arneth, August P.; and Foshee, Curtis L., 4,375,103, Cl. 375-109.000.
Foundation: The Research Institute of Electric and Magnetic Alloys, The: *See*—
Masumoto, Hakaru; and Nakamura, Naoji, 4,374,679, Cl. 148-2.000.
Framatome: *See*—
Albin, Michel, 4,374,801, Cl. 376-264.000.
Franke, Helmut: *See*—
Birkenbach, Alfred; and Franke, Helmut, 4,374,551, Cl. 188-71.900.
Fraser, Thomas A., Jr., to Vetco Offshore, Inc. Anchor connector for tension leg. 4,374,630, Cl. 405-224.000.
Fratzer, Gerhard; and Beck, Bernhard, to Degussa Aktiengesellschaft. Catalytic waste gas converter for combustion machines. 4,374,803, Cl. 422-176.000.
Fraunhofer-Gesellschaft: *See*—
Schmidt, Helmut; Tunker, Gerhard; and Scholze, Horst, 4,374,696, Cl. 156-329.000.
Scholze, Horst; Schmidt, Helmut; and Bottner, Harald, 4,374,933, Cl. 521-64.000.
Freitag, Dieter: *See*—
Schmidt, Manfred; Freitag, Dieter; and Bottenbruch, Ludwig, 4,374,971, Cl. 528-167.000.
Frenchik, Robert A., to Minnesota Mining and Manufacturing Company. Image enhancement of photothermographic elements. 4,374,921, Cl. 430-338.000.
Freud, Paul J.: *See*—
Baxter, Ronald D.; and Freud, Paul J., 4,375,056, Cl. 338-25.000.
Freye, Anne D.; and van Arkel, Johan A., to Shell Oil Company. Process control. 4,374,653, Cl. 55-18.000.
Friedman, Michael N. Binder for perforated sheets or the like. 4,374,627, Cl. 402-21.000.
Frisch, Kurt C., Jr., to Dow Chemical Company, The. Addition polymerizable isocyanate-polyamine anaerobic adhesives. 4,374,969, Cl. 528-69.000.
Fritz, Charles D.; Evans, Wilbur F.; and Cooke, Anson R., to Union Carbide Corporation. Growth regulation process. 4,374,661, Cl. 71-86.000.
Frykhult, Rune H., to AB Celleco. Strainer drum for pulp and the like. 4,374,729, Cl. 210-232.000.
Fuji Electric Co., Ltd.: *See*—
Kikuchi, Akira; Hagiya, Akio; Shinkai, Kazuteru; Kohno, Masaru; and Saito, Kiyoshi, 4,374,477, Cl. 73-861.180.
Takahashi, Takeo; and Tabei, Koichi, 4,374,727, Cl. 209-127.00B.
Fuji Photo Film Co., Ltd.: *See*—
Hirano, Shigeo; Sugimoto, Tadao; and Tsujino, Nobuyuki, 4,374,923, Cl. 430-410.000.
Kaneko, Yujiro; and Fujisaki, Hiroshi, 4,375,031, Cl. 235-64.700.
Ohara, Yuji, 4,375,064, Cl. 346-108.000.
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Torinchi, Masahara, 4,374,919, Cl. 430-220.000.
Yokoyama, Shigeki; Kishimoto, Shinzo; Toriya, Itsuki; and Nakamura, Taku, 4,374,924, Cl. 430-528.000.
Fujisaki, Hiroshi: *See*—
Kaneko, Yujiro; and Fujisaki, Hiroshi, 4,375,031, Cl. 235-64.700.
Fujitsu Limited: *See*—
Yamauchi, Takahiko, 4,375,039, Cl. 307-530.000.
Fujiwara, Takashi; Kajita, Shuji; Matsushita, Tetsuo; and Manabe, Seiichi, to Asahi Kasei Kogyo Kabushiki Kaisha. Poly-p-phenyleneterephthalamide fibers excellent in fatigue resistance and process for preparation thereof. 4,374,977, Cl. 528-348.000.
Fujiwara, Takashi; Kajita, Shuji; Matsushita, Tetsuo; and Manabe, Seiichi, to Asahi Kasei Kogyo Kabushiki Kaisha. High Young's modulus poly-p-phenylene terephthalamide fiber. 4,374,978, Cl. 528-348.000.
Fukasawa, Hiromichi, to Terumo Corporation. Oxygenator. 4,374,802, Cl. 422-48.000.
Fukui, Masahiro: *See*—
Inukai, Takashi; Sato, Hideo; Inoue, Hiromichi; and Fukui, Masahiro, 4,374,748, Cl. 252-299.660.
Fukunaga, Yukio; and Tsuda, Hiroshi, to Nissan Motor Co., Ltd. Electric connector for flat cable. 4,374,603, Cl. 339-17.00F.
Funston, Joseph; Krell, William C.; and Zimmer, Franklin V., to Detroit Edison Company, The. Method of and composition for producing a stabilized fill material. 4,374,672, Cl. 106-97.000.
G-C Dental Industrial Corp.: *See*—
Tomioka, Kentaro; Hirota, Kazuo; Muramatsu, Hiroaki; and Akahane, Shoji, 4,374,936, Cl. 523-116.000.
G. D. Searle & Co.: *See*—
Pitzele, Barnett S.; and Jones, Peter H., 4,374,932, Cl. 521-32.000.
GAF Corporation: *See*—
Resnick, Bruce M., 4,374,854, Cl. 424-311.000.
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Ganellin, Charon R.: *See*—
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Garrett, William L. Synthetic seaweed. 4,374,629, Cl. 405-24.000.
Garrou, Philip E., to Dow Chemical Company, The. Internal hydroformylation of acrolein acetals. 4,374,999, Cl. 549-453.000.
Garside, Peter G., to Allis-Chalmers Corporation. Bi-flow rotary kiln coal gasification process. 4,374,650, Cl. 48-202.000.
Gartland, Robert J., to Goodyear Tire & Rubber Company, The. Method for making an article of partially crystalline organic resin. 4,374,800, Cl. 264-522.000.
Gasser, Rupert J.; and Badertscher, Ernest, to Societe D'Assistance Technique Pour Produits Nestle S.A. Process for the production of a readily water miscible powder form amylaceous food product. 4,374,860, Cl. 426-28.000.
Gaudet, Gary G.: *See*—
Palilla, Frank C.; Gaudet, Gary G.; and Baglio, Joseph A., 4,374,819, Cl. 423-570.000.
Gauld, W. Thomas. Apparatus for screening fibrous stock. 4,374,728, Cl. 209-273.000.
Gavin, David F.: *See*—
Renner, Jacqueline M.; Scott, Robert N.; and Gavin, David F., 4,374,986, Cl. 544-221.000.
Gaylord, Norman G., to Pure Air, Inc. Method for removal of gaseous formaldehyde from the atmosphere. 4,374,814, Cl. 423-245.000.
Geary, John; and Johnson, David S., to Motorhouse Hire Limited. Vehicle transporter. 4,374,592, Cl. 280-476.00R.
Gegner, Eberhard: *See*—
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General Dynamics, Pomona Division: *See*—
Dugan, William P., 4,374,708, Cl. 204-11.000.
General Electric Co.: *See*—
Ashby, Bruce A.; and Schroeter, Siegfried H., 4,374,674, Cl. 106-287.120.
Bolon, Donald A.; and Gorczyca, Thomas B., 4,374,972, Cl. 528-185.000.
Cusano, Dominic A.; Swank, Robert K.; and White, Philip J., 4,374,749, Cl. 252-301.360.
Devine, Thomas M., Jr., 4,374,666, Cl. 75-126.00D.
Dudgeon, Charles D., 4,374,751, Cl. 252-426.000.
Giugia, Paul G., 4,374,910, Cl. 429-197.000.
Hay, Allan S., 4,374,974, Cl. 528-219.000.

Lee, Minyoung; and Szala, Lawrence E., 4,374,651, Cl. 51-309.000.
Loucks, George R.; and Campbell, John R., 4,374,959, Cl. 525-394.000.
Pardini, Franco P.; and De Vizzi, Francesco, 4,375,021, Cl. 200-147.00B.
Prochazka, Svante; and Greskovich, Charles D., 4,374,792, Cl. 264-65.000.
Rabatin, Jacob G., 4,374,905, Cl. 428-691.000.
Singh, Raj N., 4,374,701, Cl. 156-567.000.
Starr, James A.; and Steinert, Leopold A., 4,375,104, Cl. 376-203.000.
Ward, William J., III, 4,374,891, Cl. 428-220.000.

General Motors Corporation: *See*—
Drauglis, Edmund; Wielonski, Roy F.; and Sliemers, Francis A., 4,374,717, Cl. 204-192.00C.
Harvey, Douglas J., 4,374,904, Cl. 428-648.000.

General Signal Corporation: *See*—
Nelson, Virgil W.; and Carlson, William L., Jr., 4,375,047, Cl. 318-48.000.

General Tire & Rubber Company, The: *See*—
Hein, Richard D.; and Fleshood, William L., 4,374,442, Cl. 14-16.500.

Georgia-Pacific Corporation: *See*—
Kelley, Jack R., 4,374,738, Cl. 252-8.50C.

Gerke, Peter; Arndt, Gerhard; Roescheisen, Friedrich; and Bruentrup, Heinrich, to Siemens Aktiengesellschaft. Digital telecommunications system. 4,375,098, Cl. 370-110.100.

Gesellschaft fur Biotechnologische Forschung: *See*—
Lindorfer, Walter; Schulz, Walther; Wagner, Fritz; and Jahn-Held, Wilhelm, 4,374,735, Cl. 210-772.000.

Gifford, Howard: *See*—
Stuck, Earl N.; Pigney, Keith D.; and Gifford, Howard, 4,374,789, Cl. 264-12.000.

Giles, Ralph R.; and Weaver, Max A., to Eastman Kodak Company. Water-soluble tris phenyl bisazo dyes for polyamide fibers. 4,374,769, Cl. 260-187.000.

Givaudan Corporation; and Schenk, Hanspeter. Esters of 2,3,6,6-tetramethyl-cyclohexenyl carboxylic acids and odorant mixtures thereof. 4,375,001, Cl. 560-128.000.

Glass, Michael; and Cea, Theresa, to Warner-Lambert Company. Aspartame sweetened chewing gum of improved sweetness stability. 4,374,858, Cl. 426-5.000.

Glavan, Kenneth A.; and Kronauge, James F., to E. R. Squibb & Sons, Inc. Myocardial imaging agent and method. 4,374,821, Cl. 424-4.000.

Glaxo Group Limited: *See*—
Robinson, John M., 4,374,983, Cl. 544-24.000.

Glitsch, Inc.: *See*—
McClain, Robert W., 4,374,786, Cl. 261-113.000.

Glogolja, Miroslav; and Baumgarten, Arthur A., to Reliance Electric Company. Dual-monitoring protection circuit for switching transistor. 4,375,073, Cl. 361-91.000.

Glogolja, Miroslav, to Reliance Electric Company. Dual-mode transistor turn-off. 4,375,074, Cl. 361-91.000.

Glugla, Paul G., to General Electric Company. Electrolyte for secondary electrochemical cell. 4,374,910, Cl. 429-197.000.

Gluskin, Lev Y.: *See*—
Azbukin, Vladimir G.; Balandin, Jury F.; Gorynin, Igor V.; Gluskin, Lev Y.; Zvezdin, Jury I.; Ignatenko, Alexandr G.; Krasnov, Alexandr N.; Melekhov, Rostislav K.; Osipova, Inna S.; Pavlov, Valery N.; Khokhlov, Alexandr A.; Stepanov, Ivan A.; Anfimov, Alexandr F.; Ardentov, Vasily V.; Burmakin, Viktor M.; Ignatov, Viktor A.; Rokhlin, Eduard A.; and Zhitkov, Vladimir V., 4,374,680, Cl. 148-2.000.

Goeckel, Ulrich: *See*—
Eckert, Guenter; Wuertele, Lothar; Petersen, Harro; Goeckel, Ulrich; and Fischer, Kurt, 4,374,872, Cl. 427-338.000.

Goldberg, Ernest; Trembly, Gray C.; and Zarr, William A., to Raytheon Company. Antipersonnel mine. 4,374,492, Cl. 102-220.000.

Goller, Glen J.: *See*—
Breault, Richard D.; and Goller, Glen J., 4,374,906, Cl. 429-44.000.

Goncher, Gary M.: *See*—
Lelental, Mark; and Goncher, Gary M., 4,374,916, Cl. 430-31.000.

Gonzales, William H., to Gulf Oil Corporation. Process for treatment of olefin polymer fibrils. 4,374,788, Cl. 264-5.000.

Goodhue, Charles T.: *See*—
Snoke, Roy E.; and Goodhue, Charles T., 4,374,930, Cl. 435-190.000.

Goodman, Lawrence A., to RCA Corporation. Method for manufacturing a vertical, grooved MOSFET. 4,374,455, Cl. 29-571.000.

Goodyear Tire & Rubber Company, The: *See*—
Cohn, Alan E., 4,374,461, Cl. 40-2.00R.
Duh, Ben, 4,374,975, Cl. 528-272.000.
Gartland, Robert J., 4,374,800, Cl. 264-522.000.
Hopper, Roger J., 4,374,732, Cl. 210-690.000.
Massey, Fred L.; and Callander, Douglas D., 4,374,949, Cl. 524-720.000.
Sandstrom, Paul H., 4,374,941, Cl. 523-206.000.
Watts, George T., 4,374,535, Cl. 152-381.600.

Gorczyca, Thomas B.: *See*—
Bolon, Donald A.; and Gorczyca, Thomas B., 4,374,972, Cl. 528-185.000.

Gorog, Istvan; and Lurie, Michael J., to RCA Corporation. Multi-bandwidth optical playback apparatus with elongated read spot. 4,375,096, Cl. 369-102.000.

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Azbukin, Vladimir G.; Balandin, Jury F.; Gorynin, Igor V.; Gluskin, Lev Y.; Zvezdin, Jury I.; Ignatenko, Alexandr G.; Krasnov, Alexandr N.; Melekhov, Rostislav K.; Osipova, Inna S.; Pavlov, Valery N.; Khokhlov, Alexandr A.; Stepanov, Ivan A.; Anfimov, Alexandr F.; Ardentov, Vasily V.; Burmakin, Viktor M.; Ignatov, Viktor A.; Rokhlin, Eduard A.; and Zhitkov, Vladimir V., 4,374,680, Cl. 148-2.000.

Grabhoefer, Herbert: *See*—
Decker, Walter; Schoen, Ernst; Grabhoefer, Herbert; and Weyland, Peter, 4,374,935, Cl. 521-173.000.

Grand Chavin, Paul, to Timex Corporation. Stepping motor drive circuit for bi-directional rotation. 4,375,049, Cl. 318-696.000.

Gray, Thomas J., to Olin Corporation. Cathode for chlor-alkali cells. 4,374,712, Cl. 204-98.000.

Great Lakes Communication Co. of Michigan: *See*—
Horak, Allen C., 4,375,014, Cl. 179-16.0EA.

Greskovich, Charles D.: *See*—
Prochazka, Svante; and Greskovich, Charles D., 4,374,792, Cl. 264-65.000.

Grise, Gary D.; Hsieh, Ning; Kalter, Howard L.; and Lam, Chung H., to International Business Machines Corporation. Dense electrically alterable read only memory. 4,375,085, Cl. 365-104.000.

Grodzka, Philomena; McCormick, Paul O.; and Fletcher, James W., to Lockheed Missiles & Space Company, Inc. Humidity controller. 4,374,655, Cl. 55-163.000.

Groeger, Theodore O. Tetrahedral windmill. 4,375,035, Cl. 290-55.000.

Grosbois, Jean: *See*—
Arnac, Andre; Ducarre, Michel; Grosbois, Jean; and Nener, Thomas, 4,374,893, Cl. 428-263.000.

Grossmann, Frederic; and Sims, Larry A., to American Hospital Supply Corporation. System and method for bandaging a patient. 4,374,520, Cl. 128-132.00D.

Gruenfeld, Norbert, to Ciba-Geigy Corporation. 1-Carboxyalkanoylindoline-2-carboxylic acids. 4,374,847, Cl. 424-274.000.

Grunau, Dietrich. Cable connector. 4,375,011, Cl. 174-65.0SS.

GTE Automatic Electric Labs Inc.: *See*—
Thoma, Donald E., 4,375,078, Cl. 364-200.000.

GTE Laboratories Incorporated: *See*—
Chagnon, Mark S.; Lester, Joseph E.; and Natansohn, Samuel, 4,374,809, Cl. 423-54.000.
Natansohn, Samuel; and Czupryna, Gary, 4,374,713, Cl. 204-109.000.
Palilla, Frank C.; Gaudet, Gary G.; and Baglio, Joseph A., 4,374,819, Cl. 423-570.000.

GTE Products Corporation: *See*—
Faria, Sixdeniel, 4,374,917, Cl. 430-94.000.

Guenter, Thomas E., to Du Pont de Nemours, E. I., and Company. Manufacture of H_2O_2. 4,374,820, Cl. 423-588.000.

Gulf Oil Corporation: *See*—
Gonzales, William H., 4,374,788, Cl. 264-5.000.

Gupta, Amitava; Ingham, John D.; and Yavrouian, Andre H., to California Institute of Technology. N-Butyl acrylate polymer composition for solar cell encapsulation and method. 4,374,955, Cl. 525-281.000.

Gurries, Raymond A.; and Stormon, Harry J. Pavement cutter. 4,374,602, Cl. 299-37.000.

Guscott, John K., to American District Telegraph Company. Passive infrared intrusion detection system. 4,375,034, Cl. 250-342.000.

Hagiwara, Toshihiko, to Olympus Optical Co., Ltd. Endoscope type high frequency surgical apparatus. 4,374,517, Cl. 128-6.000.

Hagiya, Akio: *See*—
Kikuchi, Akira; Hagiya, Akio; Shinkai, Kazuteru; Kohno, Masaru; and Saito, Kiyoshi, 4,374,477, Cl. 73-861.180.

Halcon SD Group, Inc., The: *See*—
Khoobiar, Sargis, 4,374,757, Cl. 252-437.000.
Khoobiar, Sargis, 4,374,759, Cl. 252-455.00R.

Hall, Douglas J. M.: *See*—
Bekker, Marthinus J.; and Hall, Douglas J. M., 4,374,484, Cl. 89-14.00C.

Halliburton Company: *See*—
Barrington, Burchus Q., 4,374,583, Cl. 251-324.000.
Cain, David E., 4,374,474, Cl. 73-433.000.
McLaughlin, Homer C.; and Weaver, Jimmie D., 4,374,739, Cl. 252-8.55R.
McLaughlin, Homer C., 4,374,968, Cl. 528-54.000.

Halvorsen, Eric J.; and Cornaby, David T., to Iomega Corporation. Programmable format sequencer for disk drive. 4,375,069, Cl. 360-49.000.

Hambling, Robert E.: *See*—
Hilditch, Edward A.; Hambling, Robert E.; Sparks, Colin R.; and Walker, David A., 4,374,852, Cl. 424-289.000.

Hamburger Stahlwerke GmbH: *See*—
Papst, Gero; Ropke, Gunther; and Topfer, Hans J., 4,374,585, Cl. 266-81.000.

Hamilton, Stephen R., to Eaton Corporation. Heat recoverable connector. 4,374,881, Cl. 428-36.000.

Hammershaimb, Harold U.: *See*—
Vickers, Anthony G.; Hammershaimb, Harold U.; and Hemler, Charles L., Jr., 4,374,750, Cl. 252-417.000.

Hamon, Burrell N.: *See*—
Baucom, Keith B.; and Hamon, Burrell N., 4,374,715, Cl. 204-158.00R.

Haneishi, Tatsuo: *See*—
Arai, Mamoru; Haneishi, Tatsuo; and Nakajima, Mutsuo, 4,374,764, Cl. 260-112.50R.

Hanft, Roy F.; and Pechanek, Gerald G., to International Business Machines Corporation. Text recorder with automatic word ending. 4,374,625, Cl. 400-98.000.

Hanley, Gerard L.: *See*—
Viola, Raymond D.; and Hanley, Gerard L., 4,375,053, Cl. 333-116.000.
Hanna, Daniel C. Vehicle conveyor. 4,374,496, Cl. 104-172.00B.
Hannon, Martin J.: *See*—
Roberts, Donald R.; Kritchevsky, Gina R.; and Hannon, Martin J., 4,374,879, Cl. 428-35.000.
Hara, Akio; and Yazu, Shuji, to Sumitomo Electric Industry, Ltd. Composite diamond compact for a wire drawing die and a process for the production of the same. 4,374,900, Cl. 428-551.000.
Hara, Yoshio; and Hashimoto, Yoshiaki, to Mitsubishi Steel Mfg. Co., Ltd.; and Nippon Steel Corporation. Roll having low volume resistivity for electroplating. 4,374,721, Cl. 204-293.000.
Harada, Hidefumi: *See*—
Senda, Jihei; Inoue, Yoshihiro; Uenishi, Toshiaki; Harada, Hidefumi; Nakata, Kouji; Akagi, Akio; and Yamasaki, Takanori, 4,374,676, Cl. 106-303.000.
Senda, Jihei; Inoue, Yoshihiro; Uenishi, Toshiaki; Harada, Hidefumi; Nakata, Kouji; and Akagi, Akio, 4,374,677, Cl. 106-309.000.
Harada, Mas, to Qualitone Hearing Aids Inc. Vented ear tip for hearing aid and adapter coupler therefore. 4,375,016, Cl. 179-182.00R.
Harder, Wolfgang: *See*—
Merger, Franz; Towae, Friedrich; and Harder, Wolfgang, 4,375,000, Cl. 560-25.000.
Harel, Zvi: *See*—
Litman, David J.; Harel, Zvi; and Ullman, Edwin F., 4,374,925, Cl. 435-7.000.
Harju, Philip H.; and Pasek, Eugene A., to Koppers Company, Inc. Vanadium-hydrogen-phosphorus-oxygen catalytic material. 4,374,756, Cl. 252-435.000.
Harlan, George M., to Union Carbide Corporation. Compositions comprising low pressure ethylene polymers and alkylene-alkyl acrylate copolymers; and spiral wound hose products fabricated therefrom. 4,374,882, Cl. 428-36.000.
Harmand, Pierre. Leveling table. 4,374,497, Cl. 108-4.000.
Harris Corporation: *See*—
Waters, George W.; and Luntz, Michael B., 4,375,099, Cl. 371-6.000.
Harris, Elbert E.; Patchett, Arthur A.; Tristram, Edward W.; and Wyvratt, Matthew J., to Merck & Co., Inc. Aminoacid derivatives as antihypertensives. 4,374,829, Cl. 424-177.000.
Harris, Paul J.: *See*—
Allcock, Harry R.; and Harris, Paul J., 4,374,781, Cl. 260-543.0PN.
Phillips, Kenneth G.; and Harris, Paul J., 4,374,964, Cl. 525-540.000.
Harrison, William H. Planar disc magnetic electrode. 4,374,516, Cl. 128-1.300.
Hart, Robert J. Apparatus for the continuous manufacture of finely divided metals, particularly magnesium. 4,374,633, Cl. 425-7.000.
Hartley, Phillip A., to International Business Machines Corporation. Photo method of making tri-level density photomask. 4,374,911, Cl. 430-5.000.
Hartsough, Lloyd B.: *See*—
Bolich, Raymond E., Jr.; Hartsough, Lloyd B.; and Cothran, Philip E., 4,374,825, Cl. 424-70.000.
Harvey, Douglas J., to General Motors Corporation. Tin-base body solder. 4,374,904, Cl. 428-648.000.
Harvey, Kenneth; and Hayes, Harry, to Colgate-Palmolive Company. Dental composition. 4,374,823, Cl. 424-52.000.
Hashimoto, Yoshiaki: *See*—
Hara, Yoshio; and Hashimoto, Yoshiaki, 4,374,721, Cl. 204-293.000.
Hatakeyama, Yoshiharu: *See*—
Ogasawara, Hirotake; Hatakeyama, Yoshiharu; and Ishiguro, Mitsuo, 4,374,796, Cl. 264-101.000.
Hay, Allan S., to General Electric Company. Method for making polyformals and polyformal products made thereby. 4,374,974, Cl. 528-219.000.
Hayakawa, Hiroshi: *See*—
Abe, Mitsunobu; Yoshida, Ikushi; Matsuo, Munetsugu; and Hayakawa, Hiroshi, 4,374,682, Cl. 148-12.00C.
Hayakawa, Masatoshi; and Sakazaki, Yoshitami, to CKD Corporation. Apparatus for welding base pins of fluorescent lamp. 4,375,024, Cl. 219-56.000.
Hayashi, Masaki: *See*—
Tanouchi, Tadao; Kawamura, Masanori; and Hayashi, Masaki, 4,374,845, Cl. 424-273.00R.
Hayashi, Takao; Kato, Hajime; Miyamoto, Akio; and Yoshida, Makoto. Color developer, recording unit having a layer of the color developer and process for production thereof. 4,374,671, Cl. 106-21.000.
Hayashi, Yukichi: *See*—
Sugimoto, Osamu; Akagawa, Masaki; and Hayashi, Yukichi, 4,374,557, Cl. 194-100.00A.
Hayashi, Yutaka: *See*—
Koike, Masao; Hayashi, Yutaka; and Ogaya, Masayoshi, 4,374,683, Cl. 148-12.0EA.
Hayes, Edward O., to National Research Development, Inc. Process of making an improved combustible gel and product. 4,374,646, Cl. 44-7.00D.
Hayes, Harry: *See*—
Harvey, Kenneth; and Hayes, Harry, 4,374,823, Cl. 424-52.000.
Hayes, Thomas E., to Johnson Controls, Inc. Furnace draft control system with electronic loss-of-draft timer. 4,374,569, Cl. 236-1.00G.
Hazen, George G.; Volante, Ralph P.; and Wilson, Kenneth E., to Merck & Co., Inc. Process for the preparation of N-formimidoyl thienamycin and reagents therefor. 4,374,772, Cl. 260-245.20T.
Heck, James V.: *See*—
Christensen, Burton G.; Heck, James V.; and Szymonifka, Michael J., 4,374,848, Cl. 424-274.000.
Christensen, Burton G.; and Heck, James V., 4,374,849, Cl. 424-274.000.
Hein, Richard D.; and Fleshood, William L., to General Tire & Rubber Company, The. Expansion joint sealing assembly for curb and roadway intersections. 4,374,442, Cl. 14-16.500.
Heinemann, Henning; Ohlendorf, Heinrich-Wilhelm; and Wolf, Klaus-Ulrich, to Kali-Chemie Pharma GmbH. N-Amino alkyl indole compounds compositions containing same, and a method of using same in therapy of disorders of gastrointestinal motility. 4,374,846, Cl. 424-274.000.
Heinzl, Alfred; and Stadler, Heinz, to Siemens Aktiengesellschaft. Multiple casting head. 4,374,531, Cl. 141-82.000.
Hekal, Ihab M., to Continental Packaging Company, Inc. Process for the preservation of color and flavor in liquid containing comestibles. 4,374,714, Cl. 204-131.000.
Held, Franz: *See*—
Lerch, Rolf; and Held, Franz, 4,374,575, Cl. 242-56.500.
Helgerson, Ronald C. Portable automatic multiple test system for multi-pair cables. 4,375,050, Cl. 324-51.000.
Hemler, Charles L., Jr.: *See*—
Vickers, Anthony G.; Hammersthaimb, Harold U.; and Hemler, Charles L., Jr., 4,374,750, Cl. 252-417.000.
Hemmer, Valentine J.; Piscitelli, R. Amelia; Fischer, Charles P.; and Washburn, James C., to Bendix Corporation, The. Contact for an electrical connector. 4,374,604, Cl. 339-59.00R.
Henkel Corporation, The: *See*—
Bhatia, Yog R., 4,374,940, Cl. 523-176.000.
Henkel Kommanditgesellschaft auf Aktien: *See*—
Struve, Alfred; Hill, Frank F.; and Schindler, Joachim, 4,374,776, Cl. 260-397.250.
Hennemann, Jean: *See*—
Daussin, Bernard; and Hennemann, Jean, 4,375,022, Cl. 200-148.00R.
Henry, Ronald A.; and Adicoff, Arnold, to United States of America, Navy. Synthesis of hydrocarbon soluble vanadium catalyst. 4,374,777, Cl. 260-414.000.
Hercules Incorporated: *See*—
Aldrich, Paul H., 4,374,673, Cl. 106-212.000.
Herd, Richard D., to Recognition Equipment Incorporated. IJP Drop modulator. 4,375,066, Cl. 346-140.00R.
Herz, Claus: *See*—
Eichler, Jurgen; Herz, Claus; Neinius, Karl-Heinz; and Wehner, Gregor, 4,374,984, Cl. 544-80.000.
Hess, Klaus: *See*—
Braha, Alexandru; Daucher, Hans; Hess, Klaus; Kroetzsch, Peter; Merkel, Helmut; Roedl, Roland; Schwaegerl, Walter; and Stickel, Richard, 4,374,730, Cl. 210-608.000.
Hestich, John, to Dwyer Instruments, Inc. Differential pressure gauge. 4,374,475, Cl. 73-736.000.
Hewlett-Packard Company: *See*—
Fearnside, James T.; and Stephens, Thomas P., 4,375,009, Cl. 174-36.000.
Hewlett-Packard GmbH: *See*—
Schrenker, Helge; and Hupe, Peter, 4,374,656, Cl. 55-170.000.
Heymes, Rene; and Lutz, Andre, to Uclaf, Roussel. Novel compounds. 4,374,834, Cl. 424-246.000.
Heyneman, Guido, to Siemens Aktiengesellschaft. Compressed air-actuated valve means. 4,374,582, Cl. 251-62.000.
Hilditch, Edward A.; Hambling, Robert E.; Sparks, Colin R.; and Walker, David A., to Cuprinol Limited. Anti-fungal compositions employing metal salts of carboxylic acids. 4,374,852, Cl. 424-289.000.
Hill, Frank F.: *See*—
Struve, Alfred; Hill, Frank F.; and Schindler, Joachim, 4,374,776, Cl. 260-397.250.
Hillen, Douglas A.: *See*—
Jespers, Victor H.; and Hillen, Douglas A., 4,374,534, Cl. 150-52.00R.
Hines, Stephen P., to Eastman Kodak Company. Compact X-Y positioning mechanism for microfiche. 4,374,611, Cl. 353-27.00R.
Hinkley, Carl O.: *See*—
Taylor, Chester J.; and Hinkley, Carl O., 4,374,601, Cl. 296-63.000.
Hino, Naganori: *See*—
Konishi, Hiroyuki; Hino, Naganori; Matsumoto, Hiroshi; and Yoshida, Ryo, 4,374,662, Cl. 71-103.000.
Hino, Seigo: *See*—
Kawabata, Takakazu; and Hino, Seigo, 4,374,509, Cl. 123-146.50A.
Hirai, Kentaro; Matsutani, Shigeru; Makino, Itsuo; and Ishiba, Teruyuki, to Shionogi & Co., Ltd. 4,1-Benzoxazepines and compositions. 4,374,842, Cl. 424-269.000.
Hirano, Shigeo; Sugimoto, Tadao; and Tsujino, Nobuyuki, to Fuji Photo Film Co., Ltd. Direct positive silver halide photographic light-sensitive material. 4,374,923, Cl. 430-410.000.
Hirota, Kazuo: *See*—
Tomioka, Kentaro; Hirota, Kazuo; Muramatsu, Hiroaki; and Akahane, Shoji, 4,374,936, Cl. 523-116.000.
Hirvela, George T. Scent dispenser. 4,374,571, Cl. 239-36.000.
Hissel, Leopold H.: *See*—
de Haan, Maarten R.; Compaan, Klaas; and Hissel, Leopold H., 4,375,088, Cl. 365-234.000.
Hitachi, Ltd.: *See*—
Ikushima, Ichiro, 4,375,037, Cl. 307-268.000.
Saito, Cyuichi, 4,374,558, Cl. 198-333.000.

Hoberman, Max. Temperature control system for conserving energy. 4,374,541, Cl. 165-26.000.
Hoechst Aktiengesellschaft: *See*—
Fischer, Edgar; Brandrup, Johannes; and Weinlich, Jurgen, 4,374,966, Cl. 526-62.000.
Rieck, Hans-Peter, 4,374,818, Cl. 423-388.000.
Weber, Rolf-Ortwin; Soder, Alfons; and Boksay, Istvan, 4,374,990, Cl. 544-376.000.
Hoff, Raymond E.: *See*—
Pullukat, Thomas J.; and Hoff, Raymond E., 4,374,753, Cl. 252-429.00B.
Hoffing, Lawrence B. System for model rocket construction. 4,374,493, Cl. 102-348.000.
Hoffman, Kenneth: *See*—
Zwick, Eugene B.; Nguyen, Dung D.; Brigham, William D.; and Hoffman, Kenneth, 4,374,637, Cl. 431-183.000.
Hoffmann-La Roche Inc.: *See*—
Branca, Quirico; Fischli, Albert E.; and Szente, Andre, 4,374,773, Cl. 260-245.500.
Brot, Nathan; and Weissbach, Herbert, 4,374,928, Cl. 435-68.000.
Dotz, Karl H., 4,374,775, Cl. 260-396.00K.
Hofirek, Zdenek: *See*—
Weir, Donald R.; Kerfoot, Derek G. E.; and Hofirek, Zdenek, 4,374,808, Cl. 423-42.000.
Hofmann, Klaus: *See*—
Tappe, Horst; Mayer, Hans; and Hofmann, Klaus, 4,374,640, Cl. 8-526.000.
Holmes, John R., to Discovision Associates. Apparatus for producing centrally apertured record discs. 4,374,636, Cl. 425-589.000.
Holmes, Timothy L.: *See*—
Chen, Gilbert K.; and Holmes, Timothy L., 4,374,813, Cl. 423-242.000.
Holterbosch, Johan L. M., to Magnetrol International. Oscillating level indicator. 4,375,020, Cl. 200-61.210.
Holubka, Joseph W.: *See*—
Dickie, Ray A.; and Holubka, Joseph W., 4,374,965, Cl. 525-510.000.
Holvoet, Gerard; and Legrand, Jacques, to Socapex. Device for articulating a moving blade pivoting on its base and a switch which comprises such a device. 4,375,055, Cl. 335-56.000.
Honeywell Information Systems Inc.: *See*—
Miller, Robert C.; and O'Keefe, David B., 4,375,036, Cl. 307-247.00A.
Hong, Charles A.; and Brabbs, William J., to Procter & Gamble Company, The. Doughs and cookies providing storage-stable texture variability. 4,374,862, Cl. 426-94.000.
Hooker, Robert W., to International Business Machines Corporation. Erasing typewriter with automatic/manual selection. 4,374,626, Cl. 400-697.100.
Hopper, Roger J., to Goodyear Tire & Rubber Company, The. Resins for removal of organo-sulfur compounds from organic or aqueous media. 4,374,732, Cl. 210-690.000.
Horak, Allen C., to Great Lakes Communication Co. of Michigan. Current sensing trigger for a telephone system. 4,375,014, Cl. 179-16.0EA.
Horino, Shigeo: *See*—
Omura, Hideo; and Horino, Shigeo, 4,374,463, Cl. 53-54.000.
Hornle, Reinhold: *See*—
Brandt, Horst; Hornle, Reinhold; Buchele, Richard; and Wiegner, Dieter, 4,374,642, Cl. 8-639.000.
Horton, John D., to Sonoco Products Company. Composite container with compressed body wall portion. 4,374,568, Cl. 229-5.500.
Horton Manufacturing Co., Inc.: *See*—
Dayen, Leonid, 4,374,552, Cl. 188-72.900.
Horyu, Sakae, to Canon Kabushiki Kaisha. Electronic apparatus having special key. 4,375,060, Cl. 340-365.00R.
Hosoda, Yuuichi: *See*—
Ikeda, Hisashi; and Hosoda, Yuuichi, 4,374,885, Cl. 428-160.000.
Howard, Thomas W., to International Business Machines Corporation. Microfilm camera having a moving lens. 4,374,618, Cl. 355-50.000.
Howlett, Robert J., to Container Corporation of America. Collapsible display bin stand. 4,374,560, Cl. 206-44.00R.
Hozumi, Shiro: *See*—
Takeshita, Isao; and Hozumi, Shiro, 4,374,468, Cl. 62-333.000.
Hsia, Jen C., to Canada, Her Majesty the Queen in right of, as represented by the Minister of National Defence. Method of inhibiting L-tryptophan to serum albumin binding. 4,374,857, Cl. 424-317.000.
Hsieh, Ning: *See*—
Grise, Gary D.; Hsieh, Ning; Kalter, Howard L.; and Lam, Chung H., 4,375,085, Cl. 365-104.000.
Hsieh, Shane: *See*—
Wanat, Stanley F.; and Hsieh, Shane, 4,374,920, Cl. 430-331.000.
Hu, Yaw Wen: *See*—
Ahlquist, C. Norman; Hu, Yaw Wen; Schoen, Peter F.; and Poenisch, Paul A., 4,374,915, Cl. 430-22.000.
Hudek, Amanda, Gerd Hudek, Kurt Hudek, heirs: *See*—
Hudek, Karl, deceased; and Kusserow, Bernd, 4,374,524, Cl. 128-420.00A.
Hudek, Karl, deceased (by Hudek, Amanda, Gerd Hudek, Kurt Hudek, heirs); and Kusserow, Bernd, to Siemens Aktiengesellschaft. Electromedical apparatus for interference current treatment. 4,374,524, Cl. 128-420.00A.
Hufnagel, Willi; Blanc, Maurice; and Balimann, Walter, to Societe D'Assistance Technique pour Produits Nestle S.A. Soluble coffee process. 4,374,864, Cl. 426-594.000.
Hughes Aircraft Company: *See*—
Wanlass, Frank M., 4,375,087, Cl. 365-218.000.
Hughes Tool Company: *See*—
Watkins, Bruce J., 4,374,595, Cl. 285-137.00A.
Huneke, James T.: *See*—
Dorey II, John K.; and Huneke, James T., 4,374,869, Cl. 427-97.000.
Hunt, LaWanda M.; Thompson, Malcolm J.; and Robbins, William E., to United States of America, Agriculture. Method of controlling parasitic ticks. 4,374,850, Cl. 424-274.000.
Hunt, LaWanda M.; Thompson, Malcolm J.; and Robbins, William E., to United States of America, Agriculture. Method of controlling parasitic ticks. 4,374,851, Cl. 424-285.000.
Hupe, Peter: *See*—
Schrenker, Helge; and Hupe, Peter, 4,374,656, Cl. 55-170.000.
Hurt, Alfred A. Security lock for door. 4,374,599, Cl. 292-270.000.
Hwang, Seong T. O,O-Dialkyl-s-(2,3,4-trichloro)butyl thiophosphate. 4,374,783, Cl. 260-963.000.
Hyatt, John A.; and Kashdan, David S., to Eastman Kodak Company. Process for preparation of aromatic acid chlorides. 4,374,770, Cl. 260-207.100.
Hybrid Energy, Inc.: *See*—
Briley, Patrick B., 4,374,467, Cl. 62-238.100.
ICI Americas Inc.: *See*—
Yellin, Tobias O.; and Jones, Derrick F., 4,374,836, Cl. 424-251.000.
Ignatenko, Alexandr G.: *See*—
Azbukin, Vladimir G.; Balandin, Jury F.; Gorynin, Igor V.; Gluskin, Lev Y.; Zvezdin, Jury I.; Ignatenko, Alexandr G.; Krasnov, Alexandr N.; Melekhov, Rostislav K.; Osipova, Inna S.; Pavlov, Valery N.; Khokhlov, Alexandr A.; Stepanov, Ivan A.; Anfimov, Alexandr F.; Ardentov, Vasily V.; Burmakin, Viktor M.; Ignatov, Viktor A.; Rokhlin, Eduard A.; and Zhitkov, Vladimir V., 4,374,680, Cl. 148-2.000.
Ignatov, Viktor A.: *See*—
Azbukin, Vladimir G.; Balandin, Jury F.; Gorynin, Igor V.; Gluskin, Lev Y.; Zvezdin, Jury I.; Ignatenko, Alexandr G.; Krasnov, Alexandr N.; Melekhov, Rostislav K.; Osipova, Inna S.; Pavlov, Valery N.; Khokhlov, Alexandr A.; Stepanov, Ivan A.; Anfimov, Alexandr F.; Ardentov, Vasily V.; Burmakin, Viktor M.; Ignatov, Viktor A.; Rokhlin, Eduard A.; and Zhitkov, Vladimir V., 4,374,680, Cl. 148-2.000.
IHC Holland N.V.: *See*—
Loevendie, Rudolf H., 4,374,504, Cl. 114-37.000.
Ikeda Bussan Co., Ltd.: *See*—
Ikeda, Hisashi; and Hosoda, Yuuichi, 4,374,885, Cl. 428-160.000.
Ikeda, Eiji; Adachi, Tomohiro; Ito, Yoshihiro; Yamada, Ryozo; Taga, Akio; and Takashima, Shigeo, to Aica Kogyo Co., Ltd. Tops fitted with basins and process for their production. 4,374,695, Cl. 156-293.000.
Ikeda, Hisashi; and Hosoda, Yuuichi, to Ikeda Bussan Co., Ltd. Cushion materials and method of making same. 4,374,885, Cl. 428-160.000.
Ikushima, Ichiro, to Hitachi, Ltd. Receiving circuit. 4,375,037, Cl. 307-268.000.
Imperial Chemical Industries Limited: *See*—
Nemcek, Jozef; Roberts, Thomas A.; and Sherliker, Francis R., 4,374,937, Cl. 523-116.000.
Yellin, Tobias O.; and Jones, Derrick F., 4,374,836, Cl. 424-251.000.
Ingham, John D.: *See*—
Gupta, Amitava; Ingham, John D.; and Yavrouian, Andre H., 4,374,955, Cl. 525-281.000.
Inoue, Hiromichi: *See*—
Inukai, Takashi; Sato, Hideo; Inoue, Hiromichi; and Fukui, Masahiro, 4,374,748, Cl. 252-299.660.
Inoue, Yoshihiro: *See*—
Senda, Jihei; Inoue, Yoshihiro; Uenishi, Toshiaki; Harada, Hidefumi; Nakata, Kouji; Akagi, Akio; and Yamasaki, Takanori, 4,374,676, Cl. 106-303.000.
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Institut Francais du Petrole: *See*—
Nguyen, Jean-Paul; Laval, Emmanuel; and Cendre, Andre, 4,374,547, Cl. 175-45.000.
Intel Corporation: *See*—
Ahlquist, C. Norman; Hu, Yaw Wen; Schoen, Peter F.; and Poenisch, Paul A., 4,374,915, Cl. 430-22.000.
International Business Machines Corp.: *See*—
Arneth, August P.; and Foshee, Curtis L., 4,375,103, Cl. 375-109.000.
Grise, Gary D.; Hsieh, Ning; Kalter, Howard L.; and Lam, Chung H., 4,375,085, Cl. 365-104.000.
Hanft, Roy F.; and Pechanek, Gerald G., 4,374,625, Cl. 400-98.000.
Hartley, Phillip A., 4,374,911, Cl. 430-5.000.
Hooker, Robert W., 4,374,626, Cl. 400-697.100.
Howard, Thomas W., 4,374,618, Cl. 355-50.000.
Lamos, Richard A.; and Rosati, Alfonso A., 4,374,586, Cl. 271-37.000.
Rice, Anthony J., 4,375,072, Cl. 361-87.000.
Ricketts, Martin W.; and Stubbens, Neil A., 4,375,079, Cl. 364-518.000.
Schlig, Eugene S., 4,375,059, Cl. 340-347.0AD.
Sturm, Gary V., 4,375,062, Cl. 346-75.000.
International Flavors & Fragrances Inc.: *See*—
Boden, Richard M., 4,374,998, Cl. 549-430.000.
Boden, Richard M., 4,375,005, Cl. 568-878.000.

Kiwala, Jacob; Tokarzewski, Richard J.; Schmitt, Frederick L.; and Sprecker, Mark A., 4,374,746, Cl. 252-174.110.
Sprecker, Mark A., 4,375,004, Cl. 568-665.000.
International Harvester Co.: *See*—
Westerfield, Lawerence D., 4,374,500, Cl. 111-85.000.
International Standard Electric Corporation: *See*—
Blahna, Nadezda; and Fischer, Bruno, 4,374,866, Cl. 427-10.000.
International Telephone and Telegraph Corporation: *See*—
Turbak, Albin F.; Snyder, Fred W.; and Sandberg, Karen R., 4,374,702, Cl. 162-100.000.
Intrater, Josef; and Bertoldo, Gene, to Advanced Technology, Inc. Metal coatings or metal sandwiches with boron nitride or titanium diboride substrates. 4,374,903, Cl. 428-627.000.
Isukai, Takashi; Sato, Hideo; Inoue, Hiromichi; and Fukui, Masahiro, to Chisso Corporation. 4'-(β-Alkyloxyethoxy)-4-cyanobiphenyl. 4,374,748, Cl. 252-299.660.
Iomega Corporation: *See*—
Halvorsen, Eric J.; and Cornaby, David T., 4,375,069, Cl. 360-49.000.
Ionics, Incorporated: *See*—
MacDonald, Russell J., 4,374,720, Cl. 204-252.000.
Isaacson, E. Arnold. Gem ring with interchangeable settings. 4,374,470, Cl. 63-29.00R.
Ishiba, Teruyuki: *See*—
Hirai, Kentaro; Matsutani, Shigeru; Makino, Itsuo; and Ishiba, Teruyuki, 4,374,842, Cl. 424-269.000.
Ishida, Hiroshi: *See*—
Sasaki, Koichi; Ishida, Hiroshi; Sumida, Yasuji; and Tanaka, Akira, 4,374,616, Cl. 355-3.0CH.
Ishiguro, Mitsuo: *See*—
Ogasawara, Hirotake; Hatakeyama, Yoshiharu; and Ishiguro, Mitsuo, 4,374,796, Cl. 264-101.000.
Ishimi, Hiroshi; Shimauchi, Hisaaki; and Tanaka, Chuzaburo, to Sumitomo Metal Mining Company Ltd. Method for recovering aluminum fluoride from fluorine-coataining aqueous aluminum nitrate solutions. 4,374,807, Cl. 423-11.000.
Isokinetic Sales Co.: *See*—
Ruggles, Roger, 4,374,588, Cl. 272-132.000.
Isozaki, Shin; Sasaki, Masaru; and Sakurai, Kanji, to Mitsubishi Denki Kabushiki Kaisha. Magnetic head soft loading and unloading device. 4,375,070, Cl. 360-75.000.
Ito, Yoshihiro: *See*—
Ikeda, Eiji; Adachi, Tomohiro; Ito, Yoshihiro; Yamada, Ryozo; Taga, Akio; and Takashima, Shigeo, 4,374,695, Cl. 156-293.000.
ITT Industries, Inc.: *See*—
Birkenbach, Alfred; and Franke, Helmut, 4,374,551, Cl. 188-71.900.
IV. Ker. Epitoipari Szovetkezet: *See*—
Sumeghy, Gabor, 4,374,692, Cl. 156-244.110.
Iversen, Alfred A., to Medtronic, Inc. Body stimulation lead. 4,374,527, Cl. 128-785.000.
Iwagaki, Masaru: *See*—
Ohbayashi, Keiji; Miyamoto, Akihiko; Iwagaki, Masaru; and Kajiwara, Makoto, 4,374,922, Cl. 430-383.000.
Jackisch, Philip F., to Ethyl Corporation. Stabilization of dibromostyrene. 4,375,006, Cl. 570-105.000.
Jackson, Philip, to E. Beaudrey & Co. Societe Anonyme. Dual-flow band screen and process for substituting it for a through-flow band screen. 4,374,736, Cl. 210-783.000.
Jacobone, Donato. Coatings for polyolefinic products and products covered by said coatings. 4,374,896, Cl. 428-349.000.
Jacobs, Josephus C.: *See*—
Bouma, Herman; Bouwhuis, Dominicus G.; Boers, Paulus M.; and Jacobs, Josephus C., 4,375,058, Cl. 340-146.3QZ.
Jahn-Held, Wilhelm: *See*—
Lindorfer, Walter; Schulz, Walther; Wagner, Fritz; and Jahn-Held, Wilhelm, 4,374,735, Cl. 210-772.000.
Jakobsen, Kjell M.; and Nilsson, Claes T., to PLM Aktiebolag. Blank adapted to be blown into a container and providing orientation of the material in the mouth and neck as well as the body. 4,374,878, Cl. 428-35.000.
Jespers, Victor H.; and Hillen, Douglas A. Turbine ventilator cover. 4,374,534, Cl. 150-52.00R.
Jespersen, Aksel; and Eriksen, Peter A., to Danfoss A/S. Programmable time switch. 4,375,048, Cl. 318-484.000.
Jochems, Pieter J. W., to U.S. Philips Corporation. Method of manufacturing a semiconductor device. 4,374,454, Cl. 29-571.000.
John Wyeth and Brother Limited: *See*—
Crossley, Roger, 4,374,992, Cl. 546-298.000.
Johnson, Colin A.: *See*—
Warren, Gilbert G.; and Johnson, Colin A., 4,374,450, Cl. 445-7.000.
Johnson Controls, Inc.: *See*—
Hayes, Thomas E., 4,374,569, Cl. 236-1.00G.
Johnson, David S.: *See*—
Geary, John; and Johnson, David S., 4,374,592, Cl. 280-476.00R.
Jones, Derrick F.: *See*—
Yellin, Tobias O.; and Jones, Derrick F., 4,374,836, Cl. 424-251.000.
Jones, Peter H.: *See*—
Pitzele, Barnett S.; and Jones, Peter H., 4,374,932, Cl. 521-32.000.
Jordan, John W.: *See*—
Van Fisk, James, Jr.; and Jordan, John W., 4,374,939, Cl. 523-139.000.
Josef Schlemmer GmbH: *See*—
Schlemmer, Josef; and Konig, Adolf, 4,374,596, Cl. 285-305.000.
Joseph, Joseph P.; and Bernstein, Seymour, to American Cyanamid Company. Modulators of the complement system comprising bis-glucopyranosyl arylene sulfate derivatives. 4,374,831, Cl. 424-180.000.
Joseph, Joseph P.; and Bernstein, Seymour, to American Cyanamid Company. Modulators of the complement system comprising polyhexaose arylene sulfate derivatives. 4,374,832, Cl. 424-180.000.
Kabushiki Kaisha Nippon Coinco: *See*—
Kobayashi, Osamu; and Tanaka, Masanori, 4,374,529, Cl. 133-4.00A.
Sugimoto, Osamu; Akagawa, Masaki; and Hayashi, Yukichi, 4,374,557, Cl. 194-100.00A.
Kabushiki-Kaisha Tokai-Rika-Denki-Seisakusho: *See*—
Kawaharazaki, Takashi, 4,374,594, Cl. 280-801.000.
Kachur, Michal: *See*—
Wilson, George L., 4,374,445, Cl. 15-210.00B.
Kajita, Shuji: *See*—
Fujiwara, Takashi; Kajita, Shuji; Matsushita, Tetsuo; and Manabe, Seiichi, 4,374,977, Cl. 528-348.000.
Fujiwara, Takashi; Kajita, Shuji; Matsushita, Tetsuo; and Manabe, Seiichi, 4,374,978, Cl. 528-348.000.
Kajiwara, Makoto: *See*—
Ohbayashi, Keiji; Miyamoto, Akihiko; Iwagaki, Masaru; and Kajiwara, Makoto, 4,374,922, Cl. 430-383.000.
Kali-Chemie Pharma GmbH: *See*—
Heinemann, Henning; Ohlendorf, Heinrich-Wilhelm; and Wolf, Klaus-Ulrich, 4,374,846, Cl. 424-274.000.
Kalishman, Calvin. Air and moisture induction system. 4,374,784, Cl. 261-18.00A.
Kalivretenos, Chris A.: *See*—
Brown, Michael A.; and Kalivretenos, Chris A., 4,374,577, Cl. 244-3.210.
Kalter, Hendrikus: *See*—
Sanders, Jozef A. M.; Sanders, Franciscus H. M.; Kalter, Hendrikus; and van de Ven, Everhardus P. G. T., 4,374,698, Cl. 156-643.000.
Kalter, Howard L.: *See*—
Grise, Gary D.; Hsieh, Ning; Kalter, Howard L.; and Lam, Chung H., 4,375,085, Cl. 365-104.000.
Kaneki, Satoru; Kikuchi, Yuzi; and Sasaki, Yoji, to Dai Nippon Insatsu Kabushiki Kaisha. Photomask and photomask blank. 4,374,912, Cl. 430-5.000.
Kaneko, Yujiro; and Fujisaki, Hiroshi, to Fuji Photo Film Co., Ltd. Method and device for measuring a degree of exhaustion of photographic processing solutions. 4,375,031, Cl. 235-64.700.
Kanoff, George, to AMP Incorporated. Ignition system for an electrical connector. 4,374,483, Cl. 89-1.00B.
Karapita, Alexander D. Support unit. 4,374,581, Cl. 248-337.000.
Karger, Robert; and Dungs, Horst, to Carl Still GmbH and Co. KG, Firma. Method for cooling and separating chlorides and fluorides from ammoniacal gas. 4,374,811, Cl. 423-240.000.
Kasai, Masaji; Kono, Motomichi; and Shirahata, Kunikatsu, to Kyowa Hakko Kogyo Co., Ltd. Mitomycins. 4,374,774, Cl. 548-422.000.
Kashdan, David S.: *See*—
Hyatt, John A.; and Kashdan, David S., 4,374,770, Cl. 260-207.100.
Kashio, Toshio, to Casio Computer Co., Ltd. Digital alarm timepiece with setting pointer. 4,374,622, Cl. 368-74.000.
Kathrein, Donald: *See*—
Blitstein, John; and Kathrein, Donald, 4,374,874, Cl. 427-379.000.
Kato, Hajime: *See*—
Hayashi, Takao; Kato, Hajime; Miyamoto, Akio; and Yoshida, Makoto, 4,374,671, Cl. 106-21.000.
Kato, Misao: *See*—
Tsuji, Shiro; Matsushima, Hiroshi; Shineki, Yasuharu; Kihara, Nobuyoshi; and Kato, Misao, 4,375,100, Cl. 371-38.000.
Kawabata, Takakazu; and Hino, Seigo, to Toyota Jidosha Kogyo Kabushiki Kaisha; and Nippon Denso Company Limited. Fixture device for a distributor. 4,374,509, Cl. 123-146.50A.
Kawaguchi, Yoshihisa. Device for producing a block of solidified carbon dioxide. 4,374,658, Cl. 62-35.000.
Kawaharazaki, Takashi, to Kabushiki-Kaisha Tokai-Rika-Denki-Seisakusho. Emergency buckle device. 4,374,594, Cl. 280-801.000.
Kawamura, Kiyoshi: *See*—
Shiratsuchi, Masami; Shimizu, Noboru; Shigyo, Hiromichi; Kyotani, Yoshinori; Kunieda, Hisashi; Kawamura, Kiyoshi; Sato, Seiichi; Akashi, Toshihiro; Nagakura, Masahiko; Sawada, Naotoshi; and Uchida, Yasumi, 4,374,840, Cl. 424-263.000.
Kawamura, Masanori: *See*—
Tanouchi, Tadao; Kawamura, Masanori; and Hayashi, Masaki, 4,374,845, Cl. 424-273.00R.
Kawanabe, Yutaka; and Kishimoto, Takeyoshi, to Mec Co., Ltd. Stripping solution for tin or tin alloys. 4,374,744, Cl. 252-79.400.
Kawase, Takao: *See*—
Sawai, Kiyoshi; and Kawase, Takao, 4,374,705, Cl. 203-19.000.
Kearney, Frank W., to United States of America, Army. Weld quality monitor. 4,375,026, Cl. 219-130.010.
Keilp, John P.; Moore, Warren F.; and Sirbu, Victor, to Bell Telephone Laboratories, Incorporated. Production of mold charge of elastomeric material containing magnetic oxide filler. 4,374,795, Cl. 264-152.000.
Keizer, Eugene O., to RCA Corporation. Method and apparatus for testing styli. 4,375,095, Cl. 369-55.000.
Kelleher, Kevin C.; and Christopher, Todd J., to RCA Corporation. Apparatus for advancing a video disc pickup transducer beyond a disc record defect. 4,375,094, Cl. 369-43.000.
Kelley, Jack R., to Georgia-Pacific Corporation. Drilling fluid composition. 4,374,738, Cl. 252-8.50C.

Kemp, David T., to National Research Development Corporation. Hearing faculty testing and apparatus therefor. 4,374,526, Cl. 128-746.000.

Kerfoot, Derek G. E.: *See*—
Weir, Donald R.; Kerfoot, Derek G. E.; and Hofirek, Zdenek, 4,374,808, Cl. 423-42.000.

Kerko, David J.: *See*—
Courbin, Philippe; Kerko, David J.; Mazeau, Jean P.; and Morse, David L., 4,374,931, Cl. 501-13.000.

Kesten, Yali: *See*—
Prevorsek, Dusan C.; DeBona, Bruce T.; and Kesten, Yali, 4,374,973, Cl. 528-191.000.

Ketterer, Stanley J., to Singer Company, The. Chain stitch device for lock stitch sewing machines. 4,374,503, Cl. 112-163.000.

Khokhlov, Alexandr A.: *See*—
Azbukin, Vladimir G.; Balandin, Jury F.; Gorynin, Igor V.; Gluskin, Lev Y.; Zvezdin, Jury I.; Ignatenko, Alexandr G.; Krasnov, Alexandr N.; Melekhov, Rostislav K.; Osipova, Inna S.; Pavlov, Valery N.; Khokhlov, Alexandr A.; Stepanov, Ivan A.; Anfimov, Alexandr F.; Ardentov, Vasily V.; Burmakin, Viktor M.; Ignatov, Viktor A.; Rokhlin, Eduard A.; and Zhitkov, Vladimir V., 4,374,680, Cl. 148-2.000.

Khoobiar, Sargis, to Halcon SD Group, Inc., The. Catalyst and process for producing methacrylic acid. 4,374,757, Cl. 252-437.000.

Khoobiar, Sargis, to Halcon SD Group, Inc., The. Catalysts and process for unsaturated aldehydes. 4,374,759, Cl. 252-455.00R.

Kihara, Nobuyoshi: *See*—
Tsuji, Shiro; Matsushima, Hiroshi; Shimeki, Yasuharu; Kihara, Nobuyoshi; and Kato, Misao, 4,375,100, Cl. 371-38.000.

Kikuchi, Akira; Hagiya, Akio; Shinkai, Kazuteru; Kohno, Masaru; and Saito, Kiyoshi, to Fuji Electric Co., Ltd. Ultrasonic measuring device. 4,374,477, Cl. 73-861.180.

Kikuchi, Sho: *See*—
Ueno, Eishin; and Kikuchi, Sho, 4,374,548, Cl. 180-79.000.

Kikuchi, Yuzi: *See*—
Kaneki, Satoru; Kikuchi, Yuzi; and Sasaki, Yoji, 4,374,912, Cl. 430-5.000.

Kimberly-Clark Corporation: *See*—
Bornslaeger, Stephan R., 4,374,888, Cl. 428-198.000.
Olevsky, Howard, 4,374,522, Cl. 128-285.000.

Kiriyama, Shun-ichi: *See*—
Kudo, Kazushige; Arai, Yoshihiro; Tsurutani, Ryoichi; and Kiriyama, Shun-ichi, 4,374,961, Cl. 525-439.000.

Kirk Chemicals A/S: *See*—
Trzecieski, Jan, 4,374,861, Cl. 426-42.000.

Kishimoto, Shinzo: *See*—
Yokoyama, Shigeki; Kishimoto, Shinzo; Toriya, Itsuki; and Nakamura, Taku, 4,374,924, Cl. 430-528.000.

Kishimoto, Takeyoshi: *See*—
Kawanabe, Yutaka; and Kishimoto, Takeyoshi, 4,374,744, Cl. 252-79.400.

Kissei Pharmaceutical Co.: *See*—
Tanouchi, Tadao; Kawamura, Masanori; and Hayashi, Masaki, 4,374,845, Cl. 424-273.00R.

Kitamura, Takashi, to Canon Kabushiki Kaisha. Recording apparatus with laser beam. 4,375,063, Cl. 346-108.000.

Kitamura, Takashi, to Canon Kabushiki Kaisha. Semiconductor laser device having a stabilized output beam. 4,375,067, Cl. 346-160.000.

Kiwala, Jacob; Tokarzewski, Richard J.; Schmitt, Frederick L.; and Sprecker, Mark A., to International Flavors & Fragrances Inc. Cyclohexyl phenethylether derivatives, process for preparing same and uses thereof in combatting tobacco beetles and in augmenting or enhancing the aroma of perfumes, colognes and perfumed articles. 4,374,746, Cl. 252-174.110.

Kleemann, Axel; and Samson, Marc, to Degussa Aktiengesellschaft. Process for the production of tryptophane-hydantoin. 4,374,995, Cl. 548-309.000.

Klein, Harriet S.: *See*—
Weisrock, William P.; and Klein, Harriet S., 4,374,929, Cl. 435-104.000.

Kniepkamp, Alberto: *See*—
Moore, Douglas R.; and Kniepkamp, Alberto, 4,374,482, Cl. 84-1.190.

Kobayashi, Osamu; and Tanaka, Masanori, to Kabushiki Kaisha Nippon Coinco. Coin dispensing apparatus. 4,374,529, Cl. 133-4.00A.

Kobayashi, Takashi, to Yamaha Hatsudoki Kabushiki Kaisha. Strut-type steering ski suspension for snowmobiles. 4,374,591, Cl. 280-21.00R.

Kobayashi, Takumi, to Asahi Kogaku Kogyo Kabushiki Kaisha. Mechanism for loading film back in or unloading same from camera body. 4,374,614, Cl. 354-216.000.

Kobuck, Richard M.: *See*—
Wojcik, Thaddeus A.; Kobuck, Richard M.; and Antol, Ronald F., 4,374,462, Cl. 51-411.000.

Koch Engineering Company, Inc.: *See*—
Chen, Gilbert K.; and Holmes, Timothy L., 4,374,813, Cl. 423-242.000.

Koga, Kazunori; Nagano, Saburo; Mizuta, Shinichiro; and Nakayama, Masayoshi, to Kyoto Ceramic Kabushiki Kaisha. Method of producing dense sintered silicon carbide body from polycarbosilane. 4,374,793, Cl. 264-65.000.

Koh-I-Noor Rapidograph, Inc.: *See*—
Neumann, Ruediger, 4,374,565, Cl. 211-69.500.

Kohno, Masaru: *See*—
Kikuchi, Akira; Hagiya, Akio; Shinkai, Kazuteru; Kohno, Masaru; and Saito, Kiyoshi, 4,374,477, Cl. 73-861.180.

Koike, Masao; Hayashi, Yutaka; and Ogaya, Masayoshi, to Sumitomo Metal Industries, Ltd.; and Nippon Stainless Steel Co., Ltd. Process for manufacturing ferritic stainless steel sheet having good formability, surface appearance and corrosion resistance. 4,374,683, Cl. 148-12.0EA.

Kok, Cornelis J. M. Process for the preparation of a liquid-absorbing and shock-absorbing material. 4,374,794, Cl. 264-122.000.

Kollmorgen Technologies Corporation: *See*—
Stahl, Fritz; and Steffen, Horst, 4,374,868, Cl. 427-97.000.

Kollross, Gunter: *See*—
Steinbis, Fritz K., 4,374,871, Cl. 427-236.000.

Komada, Hitoshi. Method of connecting a co-axial cable to a connector. 4,374,458, Cl. 29-857.000.

Komurasaki, Satoshi; Ueda, Atsushi; and Yamane, Tsuneo, to Mitsubishi Denki Kabushiki Kaisha. Ignition timing correcting system for internal combustion engine. 4,374,510, Cl. 123-418.000.

Kondo, Kazuo: *See*—
Takami, Akio; and Kondo, Kazuo, 4,374,942, Cl. 523-210.000.

Konig, Adolf: *See*—
Schlemmer, Josef; and Konig, Adolf, 4,374,596, Cl. 285-305.000.

Konishi, Hiroyuki; Hino, Naganori; Matsumoto, Hiroshi; and Yoshida, Ryo, to Sumitomo Chemical Company, Limited. Diphenyl sulfone compounds, and their production and use. 4,374,662, Cl. 71-103.000.

Konishiroku Photo Industry Co., Ltd.: *See*—
Ohbayashi, Keiji; Miyamoto, Akihiko; Iwagaki, Masaru; and Kajiwara, Makoto, 4,374,922, Cl. 430-383.000.

Kono, Motomichi: *See*—
Kasai, Masaji; Kono, Motomichi; and Shirahata, Kunikatsu, 4,374,774, Cl. 548-422.000.

Koon, Norman C., to United States of America, Navy. Magnetostrictive devices. 4,374,665, Cl. 75-123.00E.

Koorneef, Jacob, to U.S. Philips Corporation. Apparatus for manufacturing a color display tube. 4,374,452, Cl. 445-66.000.

Koppers Company, Inc.: *See*—
Harju, Philip H.; and Pasek, Eugene A., 4,374,756, Cl. 252-435.000.

Koschinek, Gunter; and Wandel, Dietmar, to Davy McKee Aktiengesellschaft. Process for the production of high strength yarns by spin-stretching and yarns produced by the process, especially from polyamide-6 and polyester filaments. 4,374,797, Cl. 264-210.300.

Kowa Company, Ltd.: *See*—
Shiratsuchi, Masami; Shimizu, Noboru; Shigyo, Hiromichi; Kyotani, Yoshinori; Kunieda, Hisashi; Kawamura, Kiyoshi; Sato, Seiichi; Akashi, Toshihiro; Nagakura, Masahiko; Sawada, Naotoshi; and Uchida, Yasumi, 4,374,840, Cl. 424-263.000.

Koyama, Kazuo: *See*—
Yotsumoto, Toshihiro; and Koyama, Kazuo, 4,374,962, Cl. 525-442.000.

Krasnov, Alexandr N.: *See*—
Azbukin, Vladimir G.; Balandin, Jury F.; Gorynin, Igor V.; Gluskin, Lev Y.; Zvezdin, Jury I.; Ignatenko, Alexandr G.; Krasnov, Alexandr N.; Melekhov, Rostislav K.; Osipova, Inna S.; Pavlov, Valery N.; Khokhlov, Alexandr A.; Stepanov, Ivan A.; Anfimov, Alexandr F.; Ardentov, Vasily V.; Burmakin, Viktor M.; Ignatov, Viktor A.; Rokhlin, Eduard A.; and Zhitkov, Vladimir V., 4,374,680, Cl. 148-2.000.

Krebs, Peter: *See*—
Wuthrich, Hans-Rudolf; Speigel, Hubert; Lehner, Hermann; and Krebs, Peter, 4,375,023, Cl. 200-148.00R.

Krell, William C.: *See*—
Funston, Joseph; Krell, William C.; and Zimmer, Franklin V., 4,374,672, Cl. 106-97.000.

Kritchevsky, Gina R.: *See*—
Roberts, Donald R.; Kritchevsky, Gina R.; and Hannon, Martin J., 4,374,879, Cl. 428-35.000.

Kroetzsch, Peter: *See*—
Braha, Alexandru; Daucher, Hans; Hess, Klaus; Kroetzsch, Peter; Merkel, Helmut; Roedl, Roland; Schwaegerl, Walter; and Stickel, Richard, 4,374,730, Cl. 210-608.000.

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Glavan, Kenneth A.; and Kronauge, James F., 4,374,821, Cl. 424-4.000.

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Hudek, Karl, deceased; and Kusserow, Bernd, 4,374,524, Cl. 128-420.00A.

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Suzuki, Kazuaki; and Kuwabara, Shohei, 4,374,643, Cl. 8-648.000.

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Koga, Kazunori; Nagano, Saburo; Mizuta, Shinichiro; and Nakayama, Masayoshi, 4,374,793, Cl. 264-65.000.

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Kasai, Masaji; Kono, Motomichi; and Shirahata, Kunikatsu, 4,374,774, Cl. 548-422.000.

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Bullen, Ronald S.; and Lillies, Allan T., 4,374,545, Cl. 166-280.000.

Labana, Santokh S.; and Theodore, Ares N., to Ford Motor Company. Powder paint with epoxy and hydroxy copolymer and anhydride. 4,374,954, Cl. 525-207.000.

Labaw, Clifford S.; and Wellman, George R., to SK & F Lab Co. Disulfide intermediate for cimetidine. 4,374,996, Cl. 548-342.000.

Lacroix, Bernard, to Cycles Peugeot. Drive unit for a two-wheeled motor-driven vehicle and vehicle including said unit. 4,374,549, Cl. 180-207.000.

Lam, Chung H.: *See*—
Grise, Gary D.; Hsieh, Ning; Kalter, Howard L.; and Lam, Chung H., 4,375,085, Cl. 365-104.000.

La Mattina, John L.; and Lipinski, Christopher A., to Pfizer Inc. 2-Guanidino-4-heteroarylthiazoles. 4,374,843, Cl. 424-270.000.

Lamos, Richard A.; and Rosati, Alfonso A., to International Business Machines Corporation. Document feed sheet aligner. 4,374,586, Cl. 271-37.000.

Lange, Howard G., to Zenith Radio Corporation. Image projection screen with decreased color shift as a function of viewing angle, and method of manufacture. 4,374,609, Cl. 350-128.000.

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Larcom & Mitchell Company, Inc.: *See*—
Mitchell, Charles E., 4,374,546, Cl. 172-148.000.

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Favier, Colette; Pinhas, Henri; Beranger, Serge; and Pascal, Jean-Claude, 4,374,835, Cl. 424-250.000.
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Lathrop, John C., to AMP Incorporated. Dielectric plug for a coaxial connector. 4,374,606, Cl. 339-177.00R.

Lattuada, Sergio, to S.T.I. Strumentazione Industriale S.p.A. Single annular membrane type of pneumatic positioner. 4,374,485, Cl. 91-387.000.

Laval, Emmanuel: *See*—
Nguyen, Jean-Paul; Laval, Emmanuel; and Cendre, Andre, 4,374,547, Cl. 175-45.000.

Lebeau, Louis; and Bornard, Guy, to Centre Technique de l'Industrie des Papiers, Cartons et Celluloses. Control system for papermaking machine headbox. 4,374,703, Cl. 162-253.000.

le Clerc de Bussy, Jacques. Method for casting parts made of fused ceramic material. 4,374,799, Cl. 264-332.000.

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Baxter, Ronald D.; and Freud, Paul J., 4,375,056, Cl. 338-25.000.

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Holvoet, Gerard; and Legrand, Jacques, 4,375,055, Cl. 335-56.000.

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Wuthrich, Hans-Rudolf; Speigel, Hubert; Lehner, Hermann; and Krebs, Peter, 4,375,023, Cl. 200-148.00R.

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Sninsky, John J.; and Cohen, Stanley N., 4,374,927, Cl. 435-68.000.

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Lemon, Francis W.: *See*—
Chuang, Karl T.; Roett, Maurice F.; and Lemon, Francis W., 4,374,907, Cl. 429-57.000.

Lerch, Rolf; and Held, Franz, to Maschinenfabrik Goebel GmbH. Winding machine for continuously winding strips of web material into rolls. 4,374,575, Cl. 242-56.500.

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Chagnon, Mark S.; Lester, Joseph E.; and Natansohn, Samuel, 4,374,809, Cl. 423-54.000.

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Tai, Ho T., 4,374,747, Cl. 252-186.260.

Li, Hsueh M., to Ethyl Corporation. Phosphonitrilic chloride polymers. 4,374,815, Cl. 423-300.000.

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Muller, Hans E., 4,374,913, Cl. 430-6.000.

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Escher, Balint; Prince, Dominique; and Romanet, Rene, 4,375,075, Cl. 361-433.000.

Lillies, Allan T.: *See*—
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Lim, Gary M. F.; and Endo, Masaki, to Bristol-Myers Company. Process for preparation of 5-mercaptotetrazolyl-1-acetic acid. 4,374,994, Cl. 548-251.000.

Lindbergh, Charles. Collapsing closure system and operating mechanism. 4,374,537, Cl. 160-189.000.

Lindholm, Alfons S. M.; and Magnusson, Rolf C. G. Tubular electrode. 4,374,908, Cl. 429-140.000.

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Lipinski, Christopher A.: *See*—
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Grodzka, Philomena; McCormick, Paul O.; and Fletcher, James W., 4,374,655, Cl. 55-163.000.

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Loffler, Walter. Web take-off roller assembly. 4,374,448, Cl. 19-106.00R.

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Blenner, Donald R.; and Boenig, Herman V., 4,374,694, Cl. 156-272.600.

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Lowrey, Robert E.: *See*—
Barry, Patrick D.; Lowrey, Robert E.; and Dobbs, Kenneth, 4,375,080, Cl. 364-551.000.

Luntz, Michael B.: *See*—
Waters, George W.; and Luntz, Michael B., 4,375,099, Cl. 371-6.000.

Lurie, Michael J.: *See*—
Gorog, Istvan; and Lurie, Michael J., 4,375,096, Cl. 369-102.000.

Lutz, Andre: *See*—
Heymes, Rene; and Lutz, Andre, 4,374,834, Cl. 424-246.000.

MacDonald, Russell J., to Ionics, Incorporated. Synthesis of water soluble cross-linkers and their use in the manufacture of anionic polymers. 4,374,720, Cl. 204-252.000.

Mac Gregor, David C. Cardiovascular prosthetic devices and implants with porous systems. 4,374,669, Cl. 75-208.00R.

Mack, Mark P.: *See*—
Berge, Charles T.; Mack, Mark P.; and Starks, Charles M., 4,374,755, Cl. 252-431.00R.

Magnetrol International: *See*—
Holterbosch, Johan L. M., 4,375,020, Cl. 200-61.210.

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Berick, Alan C.; and Magnussen, Haakon T., Jr., 4,374,620, Cl. 356-246.000.

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Lindholm, Alfons S. M.; and Magnusson, Rolf C. G., 4,374,908, Cl. 429-140.000.

Mahr, Tibor G., to Du Pont de Nemours, E. I., and Company. Elastomeric film. 4,374,898, Cl. 428-447.000.

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Hirai, Kentaro; Matsutani, Shigeru; Makino, Itsuo; and Ishiba, Teruyuki, 4,374,842, Cl. 424-269.000.

Manabe, Seiichi: *See*—
Fujiwara, Takashi; Kajita, Shuji; Matsushita, Tetsuo; and Manabe, Seiichi, 4,374,977, Cl. 528-348.000.

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Fleischer, Jean C.; Clark, Gary T.; and Maner, Ronald J., 4,374,768, Cl. 260-158.000.

March, Joseph E., to Platt Luggage, Inc. Carrying case with guards. 4,374,555, Cl. 190-48.000.

Marcus, Michael A., to Eastman Kodak Company. Temperature gradient method of nonuniformly poling a body of polymeric piezoelectric material and novel flexure elements produced thereby. 4,375,042, Cl. 310-357.000.

Marcus, Sanford M., to Du Pont de Nemours, E. I., and Company. Silicon solar cells with aluminum-magnesium alloy low resistance contacts. 4,375,007, Cl. 136-256.000.

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McGowan, Joseph L., 4,374,790, Cl. 264-32.000.

Martinek, Thomas W., to Teepak, Inc. Six-wheel spinning shirring head. 4,374,447, Cl. 17-1.00R.

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Lerch, Rolf; and Held, Franz. 4,374,575, Cl. 242-56.500.

Massey, Fred L.; and Callander, Douglas D., to Goodyear Tire & Rubber Company, The. Composition and process for making a green colored polyester. 4,374,949, Cl. 524-720.000.

Massey, Lester G.; Clawson, Lawrence G.; and Syska, Andrew J., to Consolidated Natural Gas Service Company, Inc. Pneumatic transport and heat exchange systems. 4,374,540, Cl. 165-1.000.

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Mathur, Krishan Dyal: *See*—
Wahmi, Hakeem V. R., 4,374,824, Cl. 424-58.000.

Matsumoto, Hiroshi: *See*—
Konishi, Hiroyuki; Hino, Naganori; Matsumoto, Hiroshi; and Yoshida, Ryo, 4,374,662, Cl. 71-103.000.

Matsumura, Susumu; and Suzuki, Takashi, to Canon Kabushiki Kaisha. Mark indicating device for optical apparatus. 4,374,612, Cl. 354-53.000.

Matsuo, Munetsugu: *See*—
Abe, Mitsunobu; Yoshida, Ikushi; Matsuo, Munetsugu; and Hayakawa, Hiroshi, 4,374,682, Cl. 148-12.00C.

Matsushima, Hiroshi: *See*—
Tsuji, Shiro; Matsushima, Hiroshi; Shimeki, Yasuharu; Kihara, Nobuyoshi; and Kato, Misao, 4,375,100, Cl. 371-38.000.

Matsushita Electric Industrial Company: *See*—
Takeshita, Isao; and Hozumi, Shiro, 4,374,468, Cl. 62-333.000.

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Aizawa, Kimio; and Nagata, Takashi, 4,375,041, Cl. 310-348.000.
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Mattel, Inc.: *See*—
Shoff, Daniel J., 4,375,061, Cl. 340-384.00E.

Maury, Louis, to Societe E. Lacroix-Tous Artifices. Electro-magnetic decoy-launcher ammunition. 4,374,494, Cl. 102-357.000.

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Maxson, Myron T.: *See*—
Brown, Paul L.; Lee, Chi-Long; and Maxson, Myron T., 4,374,967, Cl. 528-15.000.

Mayer, Hans: *See*—
Tappe, Horst; Mayer, Hans; and Hofmann, Klaus, 4,374,640, Cl. 8-526.000.

Mazeau, Jean P.: *See*—
Courbin, Philippe; Kerko, David J.; Mazeau, Jean P.; and Morse, David L., 4,374,931, Cl. 501-13.000.

McBride, Thomas R., to Technicare Corporation. Radiographic apparatus and method with logarithmic video compression. 4,375,068, Cl. 358-111.000.

McClain, Robert W., to Glitsch, Inc. Unitized scrubber tower. 4,374,786, Cl. 261-113.000.

Mc Combie, Stuart W., to Schering Corporation. Stable derivatives of (5R,6S,8R)-6-hydroxyethyl-2-ethylthiopenem-3-carboxylic acids. 4,374,844, Cl. 424-270.000.

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Grodzka, Philomena; McCormick, Paul O.; and Fletcher, James W., 4,374,655, Cl. 55-163.000.

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McGowan, Joseph L., to Marley Company. Method and apparatus for pumping concrete to form structure at elevated heights. 4,374,790, Cl. 264-32.000.

McGregor, William H., to American Home Products Corporation. Mammalian collagenase inhibitors. 4,374,765, Cl. 260-112.50R.

McLaughlin, Alexander: *See*—
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McLaughlin, Homer C.; and Weaver, Jimmie D., to Halliburton Company. Oil well treating method and composition. 4,374,739, Cl. 252-8.55R.

McLaughlin, Homer C., to Halliburton Company. Methods of forming isocyanate polymers. 4,374,968, Cl. 528-54.000.

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Oliff, James R., 4,374,562, Cl. 206-434.000.
Stout, James T.; and Wood, Prentice J., 4,374,561, Cl. 206-188.000.

Mears, Barry J.: *See*—
Badmin, John S.; and Mears, Barry J., 4,374,833, Cl. 424-225.000.

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Iversen, Alfred A., 4,374,527, Cl. 128-785.000.

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Azbukin, Vladimir G.; Balandin, Jury F.; Gorynin, Igor V.; Gluskin, Lev Y.; Zvezdin, Jury I.; Ignatenko, Alexandr G.; Krasnov, Alexandr N.; Melekhov, Rostislav K.; Osipova, Inna S.; Pavlov, Valery N.; Khokhlov, Alexandr A.; Stepanov, Ivan A.; Anfimov, Alexandr F.; Ardentov, Vasily V.; Burmakin, Viktor M.; Ignatov, Viktor A.; Rokhlin, Eduard A.; and Zhitkov, Vladimir V., 4,374,680, Cl. 148-2.000.

Mercer, Frank B., to P.L.G. Research. Production of plastic mesh structure. 4,374,798, Cl. 264-288.800.

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Anderson, Paul S.; Christy, Marcia E.; Evans, Ben E.; and Remy, David C., 4,374,838, Cl. 424-256.000.
Christensen, Burton G.; Heck, James V.; and Szymonifka, Michael J., 4,374,848, Cl. 424-274.000.
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Doherty, James B.; and Allison, Debra L., 4,374,997, Cl. 548-539.000.
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Eichler, Jurgen; Herz, Claus; Neisius, Karl-Heinz; and Wehner, Gregor, 4,374,984, Cl. 544-80.000.

Merger, Franz; Towae, Friedrich; and Harder, Wolfgang, to BASF Aktiengesellschaft. Process for the preparation of an aryl mono-, di-, and/or polyurethane. 4,375,000, Cl. 560-25.000.

Merkel, Helmut: *See*—
Braha, Alexandru; Daucher, Hans; Hess, Klaus; Kroetzsch, Peter; Merkel, Helmut; Roedl, Roland; Schwaegerl, Walter; and Stickel, Richard, 4,374,730, Cl. 210-608.000.

Mesnel, Francois, to Etablissements Mesnel. Sealing strip. 4,374,880, Cl. 428-36.000.

Michigan Molecular Institute: *See*—
Quirk, Roderic P., 4,374,957, Cl. 525-314.000.

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Fassell, Wayne M., 4,374,499, Cl. 110-243.000.

Micklethwaite, William F. H., to Cominco Ltd. Heat treatment of cadmium mercury telluride. 4,374,684, Cl. 148-13.100.

Microdyne Corporation: *See*—
Anderson, Tore N., 4,375,052, Cl. 333-21.00A.

Miles, John H., to Wean United, Inc. Electrolytic cell. 4,374,718, Cl. 204-202.000.

Miletech, Inc.: *See*—
Wyatt, Charles E., 4,374,785, Cl. 261-51.000.

Miller, Gregory E.; and Toth, John E., to Cubic Western Data. Ticket diverter module. 4,374,564, Cl. 209-583.000.

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Miller, William R., to RCA Corporation. Method of assembling a CRT using a coded subassembly or part. 4,374,451, Cl. 445-22.000.

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Arens, Robert P., 4,374,889, Cl. 428-207.000.
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Minotti, Peter L. Torque transfer device for wrench applications. 4,374,479, Cl. 81-57.300.

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Sasaki, Koichi; Ishida, Hiroshi; Sumida, Yasuji; and Tanaka, Akira, 4,374,616, Cl. 355-3.0CH.

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Isozaki, Shin; Sasaki, Masaru; and Sakurai, Kanji, 4,375,070, Cl. 360-75.000.
Komurasaki, Satoshi; Ueda, Atsushi; and Yamane, Tsuneo, 4,374,510, Cl. 123-418.000.
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Atsukawa, Masumi; Shinoda, Naoharu; Tatani, Atsushi; and Shimizu, Taku, 4,374,812, Cl. 423-242.000.
Mitsubishi Steel Mfg. Co., Ltd.: *See*—
Hara, Yoshio; and Hashimoto, Yoshiaki, 4,374,721, Cl. 204-293.000.
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Hayashi, Takao; Kato, Hajime; Miyamoto, Akio; and Yoshida, Makoto, 4,374,671, Cl. 106-21.000.
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Takemura, Yoshifumi; and Miyazaki, Hirokazu, 4,374,946, Cl. 524-271.000.
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Svensson, Sven A., 4,374,533, Cl. 144-208.00B.
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Canterino, Peter J.; and Allen, Craig E., 4,374,690, Cl. 156-229.000.
Chen, Catherine S. H., 4,374,740, Cl. 252-8.55D.
Mocek, Chris J.: *See*—
Larson, Dana E.; Mouton, Ronnie J.; and Mocek, Chris J., 4,374,737, Cl. 252-8.50P.
Mochida, Haruo, to Nissan Motor Co., Ltd. Remote control arrangement. 4,374,597, Cl. 292-8.000.
Moffatt, William G.: *See*—
Desai, Jaydev D.; and Moffatt, William G., 4,374,668, Cl. 420-507.000.
Molla, Pietro, to Saffa S.p.A. Process for the purification of phosphorus pentasulphide by distillation under vacuum. 4,374,706, Cl. 203-91.000.
Mollenkopf, Lloyd C., to Rosemount Office Systems, Inc. Panel construction including electrical connectors. 4,375,010, Cl. 174-48.000.
Mollet, Herbert; and Wyrsch, Dieter, to Ciba-Geigy Ltd. Process for the production of negative color images by the silver dye bleach process, and the silver dye bleach material used in this process. 4,374,914, Cl. 430-15.000.
Monsanto Company: *See*—
Coran, Aubert Y.; and Patel, Raman, 4,374,956, Cl. 525-296.000.
Lee, Yoon C., deceased; Deets, Gary L.; and Trementozzi, Quirino A., 4,374,951, Cl. 525-73.000.
Slocombe, Robert J., 4,374,670, Cl. 106-20.000.
Montedison, S.p.A.: *See*—
Scotti, Carlo; Pace, Renato C.; and Carra', Sergio, 4,374,675, Cl. 106-300.000.
Monteyne, Guido, to Paul Wurth S.A. Process for granulation of slag. 4,374,645, Cl. 23-293.00A.
Moore, Bernard C.: *See*—
Carucci, Alberto; and Moore, Bernard C., 4,374,635, Cl. 425-441.000.
Moore, Douglas R.; and Kniepkamp, Alberto, to Norlin Industries, Inc. Vocal effect for musical instrument. 4,374,482, Cl. 84-1.190.
Moore, Howard G.: *See*—
Pacifici, James G.; Newland, Gordon C.; and Moore, Howard G., 4,374,716, Cl. 204-159.190.
Moore, Warren F.: *See*—
Keilp, John P.; Moore, Warren F.; and Sirbu, Victor, 4,374,795, Cl. 264-152.000.
Morgan, Charles R.; and Kyle, David R., to W. R. Grace & Co. Heat curable epoxy-acrylate compositions. 4,374,963, Cl. 525-486.000.
Morishita Pharmaceutical Co., Ltd.: *See*—
Takagi, Takashi, 4,374,763, Cl. 260-112.00B.
Morse, David L.: *See*—
Courbin, Philippe; Kerko, David J.; Mazeau, Jean P.; and Morse, David L., 4,374,931, Cl. 501-13.000.
Morton, David C., to Baker Perkins Holdings Ltd. Apparatus for handling articles. 4,374,559, Cl. 198-429.000.
Mosell, Carl G. C. Cleaning machine with particulate abrasive. 4,374,443, Cl. 15-3.000.
Motorhouse Hire Limited: *See*—
Geary, John; and Johnson, David S., 4,374,592, Cl. 280-476.00R.
Mouton, Ronnie J.: *See*—
Larson, Dana E.; Mouton, Ronnie J.; and Mocek, Chris J., 4,374,737, Cl. 252-8.50P.
Muguruma, Tadahiro: *See*—
Shimizu, Masato; Asoshina, Eishi; Tominaga, Takashi; and Muguruma, Tadahiro, 4,374,890, Cl. 428-212.000.
Muller, Hans E., to Licht Druck Ag Granulated screen and a method of manufacturing same. 4,374,913, Cl. 430-6.000.
Muramatsu, Hiroaki: *See*—
Tomioka, Kentaro; Hirota, Kazuo; Muramatsu, Hiroaki; and Akahane, Shoji, 4,374,936, Cl. 523-116.000.
Murata, Toshio, to Citizen Watch Co., Ltd. Sound emitting device for electronic timepiece. 4,374,624, Cl. 368-250.000.
Nagakura, Masahiko: *See*—
Shiratsuchi, Masami; Shimizu, Noboru; Shigyo, Hiromichi; Kyotani, Yoshinori; Kunieda, Hisashi; Kawamura, Kiyoshi; Sato, Seiichi; Akashi, Toshihiro; Nagakura, Masahiko; Sawada, Naotoshi; and Uchida, Yasumi, 4,374,840, Cl. 424-263.000.
Nagano, Saburo: *See*—
Koga, Kazunori; Nagano, Saburo; Mizuta, Shinichiro; and Nakayama, Masayoshi, 4,374,793, Cl. 264-65.000.
Nagaoka, Shinji; and Satoh, Koji, to Seiko Koki Kabushiki Kaisha. Exposure control circuit for cameras equipped with self-timer. 4,374,615, Cl. 354-238.000.
Nagata, Takashi: *See*—
Aizawa, Kimio; and Nagata, Takashi, 4,375,041, Cl. 310-348.000.
Nahory, Robert E.; and Tell, Benjamin, to Bell Telephone Laboratories, Incorporated. Method of growing oxide layer on indium gallium arsenide. 4,374,867, Cl. 427-38.000.
Nakajima, Mutsuo: *See*—
Arai, Mamoru; Haneishi, Tatsuo; and Nakajima, Mutsuo, 4,374,764, Cl. 260-112.50R.
Nakamura, Naoji: *See*—
Masumoto, Hakaru; and Nakamura, Naoji, 4,374,679, Cl. 148-2.000.
Nakamura, Taku: *See*—
Yokoyama, Shigeki; Kishimoto, Shinzo; Toriya, Itsuki; and Nakamura, Taku, 4,374,924, Cl. 430-528.000.
Nakamura, Yoshimi: *See*—
Sasaki, Yutaka; and Nakamura, Yoshimi, 4,374,758, Cl. 252-439.000.
Nakata, Kouji: *See*—
Senda, Jihei; Inoue, Yoshihiro; Uenishi, Toshiaki; Harada, Hidefumi; Nakata, Kouji; Akagi, Akio; and Yamasaki, Takanori, 4,374,676, Cl. 106-303.000.
Senda, Jihei; Inoue, Yoshihiro; Uenishi, Toshiaki; Harada, Hidefumi; Nakata, Kouji; and Akagi, Akio, 4,374,677, Cl. 106-309.000.
Nakayama, Masayoshi: *See*—
Koga, Kazunori; Nagano, Saburo; Mizuta, Shinichiro; and Nakayama, Masayoshi, 4,374,793, Cl. 264-65.000.
Nakhle, George D.: *See*—
Bell, Cecil R., Jr.; Nakhle, George D.; and Edwards, A. Russell, 4,374,501, Cl. 112-121.150.
Nalco Chemical Company: *See*—
Allain, Ronald J.; and Smith, Gerald D., 4,375,003, Cl. 564-492.000.
Phillips, Kenneth G.; and Harris, Paul J., 4,374,964, Cl. 525-540.000.
Nara, Kiyoshi: *See*—
Tsuda, Masahiko; Ohta, Kazuhiko; and Nara, Kiyoshi, 4,374,981, Cl. 536-24.000.
Nashua Corporation: *See*—
Veillette, Norman T.; Pian, Charles H. C.; and Ashour, Tahsin A., 4,374,918, Cl. 430-115.000.
Natansohn, Samuel; and Czupryna, Gary, to GTE Laboratories Incorporated. Process for separating tungsten from coinage metals. 4,374,713, Cl. 204-109.000.
Natansohn, Samuel: *See*—
Chagnon, Mark S.; Lester, Joseph E.; and Natansohn, Samuel, 4,374,809, Cl. 423-54.000.
National Research Development Corporation: *See*—
Kemp, David T., 4,374,526, Cl. 128-746.000.
National Research Development, Inc.: *See*—
Hayes, Edward O., 4,374,646, Cl. 44-7.00D.
National Steel Corporation: *See*—
Smith, John R.; Bingle, William D.; and Austin, Lowell W., 4,374,902, Cl. 428-621.000.
Navarro, Ramon V.: *See*—
Protacio, Alfredo C.; Navarro, Ramon V.; Rio, Eliseo M., Jr.; Alonte, Antonio D.; and Pascual, Felix J., 4,374,507, Cl. 123-1.00A.
NCR Corporation: *See*—
van Velthoven, Armand J., 4,375,086, Cl. 365-149.000.
Neary, Robin P.: *See*—
Carter, Leewood C.; Neary, Robin P.; and Curtis, Jay C., 4,374,441, Cl. 412-3.000.
Neisius, Karl-Heinz: *See*—
Eichler, Jurgen; Herz, Claus; Neisius, Karl-Heinz; and Wehner, Gregor, 4,374,984, Cl. 544-80.000.
Nelson, Thomas W.; and Roehl, Dennis L., to Puritan-Bennett Corporation. Squeeze bag type resuscitator apparatus. 4,374,521, Cl. 128-205.130.
Nelson, Virgil W.; and Carlson, William L., Jr., to General Signal Corporation. Torque compensated electrical motor. 4,375,047, Cl. 318-48.000.
Nemcek, Jozef; Roberts, Thomas A.; and Sherliker, Francis R., to Imperial Chemical Industries Limited. Dispersions of siliceous solids in liquid organic media. 4,374,937, Cl. 523-116.000.
Nener, Thomas: *See*—
Arsac, Andre; Ducarre, Michel; Grosbois, Jean; and Nener, Thomas, 4,374,893, Cl. 428-263.000.
Neumann, Ruediger, to Koh-I-Noor Rapidograph, Inc. Stand for writing devices. 4,374,565, Cl. 211-69.500.
Newcombe, Jack, to Cities Service Co. Emulsion breaking of surfactant stabilized crude oil in water emulsions. 4,374,734, Cl. 210-708.000.
Newland, Gordon C.: *See*—
Pacifici, James G.; Newland, Gordon C.; and Moore, Howard G., 4,374,716, Cl. 204-159.190.
NGK Spark Plug Co., Ltd.: *See*—
Suzuki, Junichiro; and Tanaka, Hiroshi, 4,374,685, Cl. 148-126.100.
Takami, Akio; Saito, Thutomu; and Tanaka, Kazutoshi, 4,374,456, Cl. 29-588.000.
Takami, Akio; and Kondo, Kazuo, 4,374,942, Cl. 523-210.000.

Nguyen, Dung D.: *See*—
Zwick, Eugene B.; Nguyen, Dung D.; Brigham, William D.; and Hoffman, Kenneth, 4,374,637, Cl. 431-183.000.

Nguyen, Jean-Paul; Laval, Emmanuel; and Cendre, Andre, to Institut Francais du Petrole. Crank connector for directional drilling. 4,374,547, Cl. 175-45.000.

Nilsson, Claes T.: *See*—
Jakobsen, Kjell M.; and Nilsson, Claes T., 4,374,878, Cl. 428-35.000.

Nippon Chemical Industrial Co., Ltd.: *See*—
Yamaguchi, Akira, 4,374,897, Cl. 428-446.000.

Nippon Denso Company Limited: *See*—
Kawabata, Takakazu; and Hino, Seigo, 4,374,509, Cl. 123-146.50A.

Nippon Stainless Steel Co., Ltd.: *See*—
Koike, Masao; Hayashi, Yutaka; and Ogaya, Masayoshi, 4,374,683, Cl. 148-12.0EA.

Nippon Steel Corporation: *See*—
Abe, Mitsunobu; Yoshida, Ikushi; Matsuo, Munetsugu; and Hayakawa, Hiroshi, 4,374,682, Cl. 148-12.00C.
Hara, Yoshio; and Hashimoto, Yoshiaki, 4,374,721, Cl. 204-293.000.
Mitsuo, Toshiharu; Shoji, Takeshi; and Sanuki, Shin-ichi, 4,374,664, Cl. 75-58.000.

Nishimura, Toshifumi, to Nissan Motor Co., Ltd. Vibration sensor. 4,374,472, Cl. 73-35.000.

Nissan Motor Co., Ltd.: *See*—
Fukunaga, Yukio; and Tsuda, Hiroshi, 4,374,603, Cl. 339-17.00F.
Mochida, Haruo, 4,374,597, Cl. 292-8.000.
Nishimura, Toshifumi, 4,374,472, Cl. 73-35.000.

Nite, Rebecca F.: *See*—
Sibley, Murray J.; and Nite, Rebecca F., 4,374,745, Cl. 252-106.000.

Nitto Chemical Industry Co., Ltd.: *See*—
Sasaki, Yutaka; and Nakamura, Yoshimi, 4,374,758, Cl. 252-439.000.

Nitto Electric Industrial Co., Ltd.: *See*—
Shimizu, Masato; Asoshina, Eishi; Tominaga, Takashi; and Muguruma, Tadahiro, 4,374,890, Cl. 428-212.000.

NL Industries, Inc.: *See*—
Van Fisk, James, Jr.; and Jordan, John W., 4,374,939, Cl. 523-139.000.

Norlin Industries, Inc.: *See*—
Moore, Douglas R.; and Kniepkamp, Alberto, 4,374,482, Cl. 84-1.19C.

Norman, Bill. Wrist support with palm pad. 4,374,439, Cl. 2-161.00A.

Novak, Robert W.: *See*—
Singh, Balwant; and Novak, Robert W., 4,374,771, Cl. 260-239.30R.

Obara, Tadashi: *See*—
Sindo, Tiuzi; Obara, Tadashi; and Adachi, Hidenari, 4,374,827, Cl. 424-92.000.

Occidental Chemical Corporation: *See*—
Combs, Daniel J., 4,374,709, Cl. 204-30.000.
El-Shazly, Mohamed F.; Baker, Kenneth D.; and Rymwid, Yvonne, 4,374,876, Cl. 427-443.100.

Ocean Phoenix Holdings NV: *See*—
Secord, Herbert C., deceased; and Secord, Fanny E. P., executor, 4,374,478, Cl. 73-863.310.

Officine Minnetti di Ornella Raveggi & C.S.a.s.: *See*—
Minnetti, Federico, 4,374,471, Cl. 68-245.000.

Ogasawara, Hirotake; Hatakeyama, Yoshiharu; and Ishiguro, Mitsuo, to Shiseido Company, Ltd.; and Yoshida Industry Co., Ltd. Method for loading cosmetic material into hollow space. 4,374,796, Cl. 264-101.000.

Ogawa, Shinsaku, to Asahi Kasei Kogyo Kabushiki Kaisha. Process for the electrolysis of an aqueous sodium chloride solution comprising, in combination, a diaphragm process and a cation exchange membrane process. 4,374,711, Cl. 204-98.000.

Ogaya, Masayoshi: *See*—
Koike, Masao; Hayashi, Yutaka; and Ogaya, Masayoshi, 4,374,683, Cl. 148-12.0EA.

Ogden, Ralph. Exercise treadmill. 4,374,587, Cl. 272-69.000.

Ohara, Yuji, to Fuji Photo Film Co., Ltd. Laser recorder. 4,375,064, Cl. 346-108.000.

Ohara, Yuji, to Fuji Photo Film Co., Ltd. Laser recorder. 4,375,065, Cl. 346-108.000.

Ohbayashi, Keiji; Miyamoto, Akihiko; Iwagaki, Masaru; and Kajiwara, Makoto, to Konishiroku Photo Industry Co., Ltd. Method for the formation of a dye image. 4,374,922, Cl. 430-383.000.

Ohlendorf, Heinrich-Wilhelm: *See*—
Heinemann, Henning; Ohlendorf, Heinrich-Wilhelm; and Wolf, Klaus-Ulrich, 4,374,846, Cl. 424-274.000.

Ohta, Kazuhiko: *See*—
Tsuda, Masahiko; Ohta, Kazuhiko; and Nara, Kiyoshi, 4,374,981, Cl. 536-24.000.

Oji Paper Co., Ltd.: *See*—
Yasuda, Tokuro; and Yamauchi, Keiji, 4,374,895, Cl. 428-328.000.

O'Keefe, David B.: *See*—
Miller, Robert C.; and O'Keefe, David B., 4,375,036, Cl. 307-247.00A.

Ole-Arkie Corp.: *See*—
Robbins, Jack, 4,374,489, Cl. 99-482.000.

Olevsky, Howard, to Kimberly-Clark Corporation. Tampon with central reservoir. 4,374,522, Cl. 128-285.000.

Oliff, James R., to Mead Corporation, The. Article carrier. 4,374,562, Cl. 206-434.000.

Olin Corporation: *See*—
Alexander, Roy P., 4,374,563, Cl. 206-499.000.
Combette, Marc; and Ollivier, Jean, 4,374,567, Cl. 227-10.000.
Doonan, David F.; and Coe, Noel N., 4,374,985, Cl. 544-190.000.
Gray, Thomas J., 4,374,712, Cl. 204-98.000.
Raynor, Robert J., 4,374,934, Cl. 521-112.000.
Renner, Jacqueline M.; Scott, Robert N.; and Gavin, David F., 4,374,986, Cl. 544-221.000.

Olinger, Rainer; and van den Bossche, Andre, to Uhde GmbH. Process for the removal of tritium from the product solutions obtained by the Purex process. 4,374,762, Cl. 252-631.000.

Ollivier, Jean: *See*—
Combette, Marc; and Ollivier, Jean, 4,374,567, Cl. 227-10.000.

Olschewski, Armin; Brandenstein, Manfred; Walter, Lothar; and Ernst, Horst M., to SKF Kugellagerfabriken GmbH. Clutch release device. 4,374,556, Cl. 192-98.000.

Olympus Optical Co., Ltd.: *See*—
Baba, Kazuo, 4,374,525, Cl. 128-660.000.
Hagiwara, Toshihiko, 4,374,517, Cl. 128-6.000.

Omron Tateisi Electronics Co.: *See*—
Uchida, Yasuo, 4,375,032, Cl. 235-380.000.

Omura, Hideo; and Horino, Shigeo, to Tokyo Shibaura Denki Kabushiki Kaisha. Apparatus for processing sheet like materials. 4,374,463, Cl. 53-54.000.

O'Neill, Padraic S., to Agrico Chemical Company. Recovery of fluorine from pond water of wet process phosphoric acid plants and recycling of defluorinated water. 4,374,810, Cl. 423-160.000.

Ono Pharmaceutical Co., Ltd.: *See*—
Tanouchi, Tadao; Kawamura, Masanori; and Hayashi, Masaki, 4,374,845, Cl. 424-273.00R.

Osipova, Inna S.: *See*—
Azbukin, Vladimir G.; Balandin, Jury F.; Gorynin, Igor V.; Gluskin, Lev Y.; Zvezdin, Jury I.; Ignatenko, Alexandr G.; Krasnov, Alexandr N.; Melekhov, Rostislav K.; Osipova, Inna S.; Pavlov, Valery N.; Khokhlov, Alexandr A.; Stepanov, Ivan A.; Anfimov, Alexandr F.; Ardentov, Vasily V.; Burmakin, Viktor M.; Ignatov, Viktor A.; Rokhlin, Eduard A.; and Zhitkov, Vladimir V., 4,374,680, Cl. 148-2.000.

Otis Elevator Company: *See*—
Weise, Andrew P.; and Wisner, George R., 4,375,057, Cl. 340-21.000.

Otwell, Corbett I.: *See*—
Westerman, Granval W.; and Otwell, Corbett I., 4,374,544, Cl. 166-252.000.

Owens-Illinois, Inc.: *See*—
Davey, Donald G., 4,374,659, Cl. 65-334.000.

P.L.G. Research: *See*—
Mercer, Frank B., 4,374,798, Cl. 264-288.800.

Pace, Renato C.: *See*—
Scotti, Carlo; Pace, Renato C.; and Carra', Sergio, 4,374,675, Cl. 106-300.000.

Pacifici, James G.; Newland, Gordon C.; and Moore, Howard G., to Eastman Kodak Company. Novel amorphous aromatic polyester modified with amine and UV curable composition containing the same. 4,374,716, Cl. 204-159.190.

Palilla, Frank C.; Gaudet, Gary G.; and Baglio, Joseph A., to GTE Laboratories Incorporated. Catalytic process for removing toxic gases from gas streams. 4,374,819, Cl. 423-570.000.

Papst, Gero; Ropke, Gunther; and Topfer, Hans J., to Hamburger Stahlwerke GmbH. Apparatus for the direct reduction of iron ores. 4,374,585, Cl. 266-81.000.

Pardini, Franco P.; and De Vizzi, Francesco, to General Electric Company. Rapid electric-arc extinguishing assembly in circuit-breaking devices such as electric circuit breakers. 4,375,021, Cl. 200-147.00B.

Pascal, Jean-Claude: *See*—
Favier, Colette; Pinhas, Henri; Beranger, Serge; and Pascal, Jean-Claude, 4,374,835, Cl. 424-250.000.
Favier, Colette; Pinhas, Henri; Beranger, Serge; and Pascal, Jean-Claude, 4,374,837, Cl. 424-253.000.

Pascual, Felix J.: *See*—
Protacio, Alfredo C.; Navarro, Ramon V.; Rio, Eliseo M., Jr.; Alonte, Antonio D.; and Pascual, Felix J., 4,374,507, Cl. 123-1.00A.

Pasek, Eugene A.: *See*—
Harju, Philip H.; and Pasek, Eugene A., 4,374,756, Cl. 252-435.000.

Patchett, Arthur A.: *See*—
Harris, Elbert E.; Patchett, Arthur A.; Tristram, Edward W.; and Wyvratt, Matthew J., 4,374,829, Cl. 424-177.000.

Patel, Raman: *See*—
Coran, Aubert Y.; and Patel, Raman, 4,374,956, Cl. 525-296.000.

Paul Wurth S.A.: *See*—
Monteyne, Guido, 4,374,645, Cl. 23-293.00A.

Pavio, Anthony M., to Rockwell International Corporation. Suspended substrate—3 dB microwave quadrature coupler. 4,375,054, Cl. 333-116.000.

Pavlakis, Dimitris: *See*—
Sakhuja, Ravinder K.; Cole, William E.; and Pavlakis, Dimitris, 4,374,660, Cl. 65-335.000.

Pavlov, Valery N.: *See*—
Azbukin, Vladimir G.; Balandin, Jury F.; Gorynin, Igor V.; Gluskin, Lev Y.; Zvezdin, Jury I.; Ignatenko, Alexandr G.; Krasnov, Alexandr N.; Melekhov, Rostislav K.; Osipova, Inna S.; Pavlov, Valery N.; Khokhlov, Alexandr A.; Stepanov, Ivan A.; Anfimov, Alexandr F.; Ardentov, Vasily V.; Burmakin, Viktor M.; Ignatov, Viktor A.; Rokhlin, Eduard A.; and Zhitkov, Vladimir V., 4,374,680, Cl. 148-2.000.

Pechanek, Gerald G.: *See*—
Hanft, Roy F.; and Pechanek, Gerald G., 4,374,625, Cl. 400-98.000.

Peck, Raymond E.; Petresh, Randall P.; and Benninger, Gary N., to Ford Motor Company. Caliper type disc brake. 4,374,553, Cl. 188-73.450.

Pena, Blas D. Fuel saver system for internal combustion engines. 4,374,508, Cl. 123-25.00E.

Penicept, Inc.: *See*—
Blesser, Barry, 4,375,081, Cl. 364-724.000.

Perfect, Frederick H., to Reading Alloys, Inc. Ferrovanadium carbide addition agents and process for their production. 4,374,667, Cl. 420-424.000.

Perkin-Elmer Corporation, The: *See*—
Theall, C. Earle, 4,375,051, Cl. 333-17.00M.

Perma-Comb Systems, Inc.: *See*—
Drapkin, Herbert, 4,374,440, Cl. 6-10.000.

Petersen, Harro: *See*—
Eckert, Guenter; Wuertele, Lothar; Petersen, Harro; Goeckel, Ulrich; and Fischer, Kurt, 4,374,872, Cl. 427-338.000.

Petersen, Stephen K., to Sheldahl, Inc. Membrane switch having adhesive label as edge seal. 4,375,018, Cl. 200-5.00A.

Peterson, Harold J., to Farmers Pride Cheese, Inc. Whey filter. 4,374,488, Cl. 99-459.000.

Peterson, John O. H.; and Fales, Howard S., to Air Products and Chemicals, Inc. Amines via the amination of olefins. 4,375,002, Cl. 564-445.000.

Petresh, Randall P.: *See*—
Peck, Raymond E.; Petresh, Randall P.; and Benninger, Gary N., 4,374,553, Cl. 188-73.450.

Petrolite Corporation: *See*—
Robinson, James R., 4,374,724, Cl. 204-302.000.

Pfeiffer, Robert C.: *See*—
Stephenson, Robert L.; and Pfeiffer, Robert C., 4,374,449, Cl. 24-230.0AL.

Pfizer Inc.: *See*—
Armstrong, William W., 4,374,826, Cl. 424-80.000.
La Mattina, John L.; and Lipinski, Christopher A., 4,374,843, Cl. 424-270.000.

Pflugrad, William G.: *See*—
Cocco, Eugene R.; Pflugrad, William G.; and Small, Byron L., 4,375,012, Cl. 174-69.000.

Phenix Works Societe Anonyme: *See*—
Piedboeuf, Albert; Polard, Victor; and Cornez, Andre, 4,374,873, Cl. 427-349.000.

Phillips, Kenneth G.; and Harris, Paul J., to Nalco Chemical Company. Method of preparing high molecular weight polyamines. 4,374,964, Cl. 525-540.000.

Phillips Petroleum Company: *See*—
Ford, Gregory A., 4,374,476, Cl. 73-23.100.

Pian, Charles H. C.: *See*—
Veillette, Norman T.; Pian, Charles H. C.; and Ashour, Tahsin A., 4,374,918, Cl. 430-115.000.

Piedboeuf, Albert; Polard, Victor; and Cornez, Andre, to Phenix Works Societe Anonyme. Process and installation for coating a metallic strip continuously with a covering layer. 4,374,873, Cl. 427-349.000.

Pierce, Harold W. Fireplace heater stove. 4,374,514, Cl. 126-123.000.

Pifco Limited: *See*—
Wood, Paul A. P., 4,375,028, Cl. 219-441.000.

Pigney, Keith D.: *See*—
Stuck, Earl N.; Pigney, Keith D.; and Gifford, Howard, 4,374,789, Cl. 264-12.000.

Pinhas, Henri: *See*—
Favier, Colette; Pinhas, Henri; Beranger, Serge; and Pascal, Jean-Claude, 4,374,835, Cl. 424-250.000.
Favier, Colette; Pinhas, Henri; Beranger, Serge; and Pascal, Jean-Claude, 4,374,837, Cl. 424-253.000.

Pinter, Warren H.: *See*—
Smith, Dale E.; and Pinter, Warren H., 4,374,689, Cl. 156-169.000.

Pioneer Electronic Corporation: *See*—
Takahashi, Shinya, 4,375,093, Cl. 369-41.000.
Yoshio, Junichi, 4,375,092, Cl. 369-41.000.

Piscitelli, R. Amelia: *See*—
Hemmer, Valentine J.; Piscitelli, R. Amelia; Fischer, Charles P.; and Washburn, James C., 4,374,604, Cl. 339-59.00R.

Pitt, William V. Method of manufacturing atmospheric resistant doors. 4,374,693, Cl. 156-267.000.

Pitzele, Barnett S.; and Jones, Peter H., to G. D. Searle & Co. 5-ASA Drug delivery system. 4,374,932, Cl. 521-32.000.

Platt Luggage, Inc.: *See*—
March, Joseph E., 4,374,555, Cl. 190-48.000.

PLM Aktiebolag: *See*—
Jakobsen, Kjell M.; and Nilsson, Claes T., 4,374,878, Cl. 428-35.000.

Plum, Hans; and Schroeer, Ulrich, to Schering Aktiengesellschaft. Monoalkylfluorotin compounds. 4,374,778, Cl. 260-429.700.

Poenisch, Paul A.: *See*—
Ahlquist, C. Norman; Hu, Yaw Wen; Schoen, Peter F.; and Poenisch, Paul A., 4,374,915, Cl. 430-22.000.

Pokhis, Naum; and Pokhis, Yakov. Handrail. 4,374,584, Cl. 256-1.000.

Pokhis, Yakov: *See*—
Pokhis, Naum; and Pokhis, Yakov, 4,374,584, Cl. 256-1.000.

Polard, Victor: *See*—
Piedboeuf, Albert; Polard, Victor; and Cornez, Andre, 4,374,873, Cl. 427-349.000.

Polaroid Corporation: *See*—
Stempeck, John W., 4,374,613, Cl. 354-196.000.

Pollack, Joel M., to Xerox Corporation. Orifice plate for ink jet printing machines. 4,374,707, Cl. 204-11.000.

Polysar Limited: *See*—
Kwok, John C.; and Lee, Ivan S., 4,374,884, Cl. 428-95.000.

Presser, Dwight W. Water ski handle and tow rope arrangement. 4,374,638, Cl. 441-69.000.

Preukschat, A. Werner: *See*—
Renner, Udo; and Preukschat, A. Werner, 4,374,579, Cl. 244-158.00R.

Prevorsek, Dusan C.; DeBona, Bruce T.; and Kesten, Yali, to Allied Corporation. Polycarbonates with suppressed aging characteristics. 4,374,973, Cl. 528-191.000.

Prince, Dominique: *See*—
Escher, Balint; Prince, Dominique; and Romanet, Rene, 4,375,075, Cl. 361-433.000.

Prochazka, Svante; and Greskovich, Charles D., to General Electric Company. Sintering of silicon nitride with Be additive. 4,374,792, Cl. 264-65.000.

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Callicott, Robert H., 4,374,572, Cl. 239-37.000.
Hong, Charles A.; and Brabbs, William J., 4,374,862, Cl. 426-94.000.
Savage, Frances H., 4,374,863, Cl. 426-553.000.
Strobel, Rudolf G., 4,374,865, Cl. 426-599.000.

Proctor & Gamble Company, The: *See*—
Bolich, Raymond E., Jr.; Hartsough, Lloyd B.; and Cothran, Philip E., 4,374,825, Cl. 424-70.000.

Protacio, Alfredo C.; Navarro, Ramon V.; Rio, Eliseo M., Jr.; Alonte, Antonio D.; and Pascual, Felix J., to Protacio, Alfredo C. Device for introducing alcohol into gasoline engine as supplemental fuel. 4,374,507, Cl. 123-1.00A.

Puchalski, Eugene; Donahue, Frances A.; and Dixon, Richard P., to Charles of the Ritz Group Ltd. Combined allantoin-hydrolyzed animal protein product and method. 4,374,766, Cl. 260-123.700.

Pullukat, Thomas J.; and Hoff, Raymond E., to Chemplex Company. Polymerization catalyst and method. 4,374,753, Cl. 252-429.00B.

Pure Air, Inc.: *See*—
Gaylord, Norman G., 4,374,814, Cl. 423-245.000.

Puritan-Bennett Corporation: *See*—
Nelson, Thomas W.; and Roehl, Dennis L., 4,374,521, Cl. 128-205.130.

Qualitone Hearing Aids Inc.: *See*—
Harada, Mas, 4,375,016, Cl. 179-182.00R.

Quient, Andrew. Marbleized ceramic articles. 4,374,688, Cl. 156-89.000.

Quirk, Roderic P., to Michigan Molecular Institute. Triblock polymers of a monovinyl aromatic compound and myrcene. 4,374,957, Cl. 525-314.000.

Rabatin, Jacob G., to General Electric Company. X-Ray intensifying screen. 4,374,905, Cl. 428-691.000.

Raghava, Ram S., to Formica Corporation. Color registered decorative laminates. 4,374,886, Cl. 428-172.000.

Randall, Richard L.: *See*—
Boone, Jerry C.; and Randall, Richard L., 4,374,628, Cl. 403-162.000.

Rannenberg, George C., to United Technologies Corporation. Variable capacity air cycle refrigeration system. 4,374,469, Cl. 62-402.000.

Rao, Subbarao N., to Burns & Roe, Inc. Flame arrestor. 4,374,649, Cl. 48-192.000.

Rasberger, Michael: *See*—
Evans, Samuel; Rasberger, Michael; and Gegner, Eberhard, 4,374,742, Cl. 252-48.400.

Ray, Siba P., to Aluminum Company of America. Inert electrode formulations. 4,374,761, Cl. 252-519.000.

Raynor, Robert J., to Olin Corporation. Semi-flexible foam polymer used in packaging. 4,374,934, Cl. 521-112.000.

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Goldberg, Ernest; Trembly, Gray C.; and Zarr, William A., 4,374,492, Cl. 102-220.000.

RCA Corporation: *See*—
Goodman, Lawrence A., 4,374,455, Cl. 29-571.000.
Gorog, Istvan; and Lurie, Michael J., 4,375,096, Cl. 369-102.000.
Keizer, Eugene O., 4,375,095, Cl. 369-55.000.
Kelleher, Kevin C.; and Christopher, Todd J., 4,375,094, Cl. 369-43.000.
Miller, William R., 4,374,451, Cl. 445-22.000.
Smith, Theodore D., 4,375,017, Cl. 200-5.00A.

Reading Alloys, Inc.: *See*—
Perfect, Frederick H., 4,374,667, Cl. 420-424.000.

Recognition Equipment Incorporated: *See*—
Herd, Richard D., 4,375,066, Cl. 346-140.00R.

Region, James A. Wood splitting device. 4,374,532, Cl. 144-193.00A.

Reichhold Chemicals, Incorporated: *See*—
Sanfilippo, Salvatore G.; and White, James T., 4,374,899, Cl. 428-514.000.

Reliance Electric Company: *See*—
Glogolja, Miroslav; and Baumgarten, Arthur A., 4,375,073, Cl. 361-91.000.
Glogolja, Miroslav, 4,375,074, Cl. 361-91.000.

Remy, David C.: *See*—
Anderson, Paul S.; Christy, Marcia E.; Evans, Ben E.; and Remy, David C., 4,374,838, Cl. 424-256.000.

Renner, Jacqueline M.; Scott, Robert N.; and Gavin, David F., to Olin Corporation. Selected siloxane adducts of tris(2-hydroxyethyl-)isocyanurate. 4,374,986, Cl. 544-221.000.

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Schneider, Morris D., 4,374,830, Cl. 424-177.000.
Resnick, Bruce M., to GAF Corporation. Fungicidal sulfur-containing phenyl esters and mixtures thereof. 4,374,854, Cl. 424-311.000.
Resnick, Bruce M., to GAF Corporation. Fungicidal naphthylene diesters and mixtures thereof. 4,374,855, Cl. 424-313.000.
Rhone-Poulenc-Textile: *See*—
Arsac, Andre; Ducarre, Michel; Grosbois, Jean; and Nener, Thomas, 4,374,893, Cl. 428-263.000.
Rice, Anthony J., to International Business Machines Corporation. Self-calibrating overcurrent detector. 4,375,072, Cl. 361-87.000.
Rice, Warren A., to Robert Bosch GmbH. Apparatus for decoring and explosive treatment of materials. 4,374,538, Cl. 164-401.000.
Richardson, Charles N., to Tri-State Oil Tool Industries, Inc. Apparatus for well treating. 4,374,543, Cl. 166-192.000.
Ricketts, Martin W.; and Stubbens, Neil A., to International Business Machines Corp. Digital data display system. 4,375,079, Cl. 364-518.000.
Rieck, Hans-Peter, to Hoechst Aktiengesellschaft. Process for the preparation of alkali metal salts of imidodisulfonic acid. 4,374,818, Cl. 423-388.000.
Rieder, Walter E., to Cincinnati Milacron Inc. Polyamide and functional fluid containing same. 4,374,741, Cl. 252-34.000.
Rio, Eliseo M., Jr.: *See*—
Protacio, Alfredo C.; Navarro, Ramon V.; Rio, Eliseo M., Jr.; Alonte, Antonio D.; and Pascual, Felix J., 4,374,507, Cl. 123-1.00A.
Ritchey, Robert W.: *See*—
Abodishish, Hani A.; and Ritchey, Robert W., 4,374,806, Cl. 423-10.000.
Robbins, Jack, to Ole-Arkie Corp. Adaptable food smoker attachment. 4,374,489, Cl. 99-482.000.
Robbins, William E.: *See*—
Hunt, LaWanda M.; Thompson, Malcolm J.; and Robbins, William E., 4,374,850, Cl. 424-274.000.
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Robert Bosch GmbH: *See*—
Rice, Warren A., 4,374,538, Cl. 164-401.000.
Roberts, Donald R.; Kritchevsky, Gina R.; and Hannon, Martin J., to Celanese Corporation. Glass bottle coating composition made from a salt of a polyamine terminated polyepoxide adduct, an epoxy crosslinker, a reactive silane, a surfactant and a natural or synthetic wax. 4,374,879, Cl. 428-35.000.
Roberts, Jonathan W., to Essex Group, Inc. Moisture resistant insulating mica tape comprising a monoalkoxy titanate. 4,374,892, Cl. 428-233.000.
Roberts, Thomas A.: *See*—
Nemcek, Jozef; Roberts, Thomas A.; and Sherliker, Francis R., 4,374,937, Cl. 523-116.000.
Robertson, Allan J., to American Cyanamid Company. Di-2,4,4'-trimethylpentylphosphinic acid and its preparation. 4,374,780, Cl. 260-502.40R.
Robinson, Ivan M., to Du Pont de Nemours, E. I., and Company. Sulfur-modified copolyether glycols, a method for preparing them, and polyurethanes prepared therefrom. 4,374,970, Cl. 528-79.000.
Robinson, James R., to Petrolite Corporation. Plural stage desalting-/dehydrating apparatus. 4,374,724, Cl. 204-302.000.
Robinson, John M., to Glaxo Group Limited. Intermediates for use in the preparation of cephalosporin antibiotics. 4,374,983, Cl. 544-24.000.
Robinson, Martin A.: *See*—
Anello, Louis G.; Van Der Puy, Michael; Robinson, Martin A.; and Eibeck, Richard E., 4,374,782, Cl. 260-544.00F.
Rockwell International Corporation: *See*—
Pavio, Anthony M., 4,375,054, Cl. 333-116.000.
Rodriguez, Angel L. Bicycle freewheel wrench pry adapter. 4,374,453, Cl. 29-426.500.
Roedl, Roland: *See*—
Braha, Alexandru; Daucher, Hans; Hess, Klaus; Kroetzsch, Peter; Merkel, Helmut; Roedl, Roland; Schwaegerl, Walter; and Stickel, Richard, 4,374,730, Cl. 210-608.000.
Roehl, Dennis L.: *See*—
Nelson, Thomas W.; and Roehl, Dennis L., 4,374,521, Cl. 128-205.130.
Roescheisen, Friedrich: *See*—
Gerke, Peter; Arndt, Gerhard; Roescheisen, Friedrich; and Bruentrup, Heinrich, 4,375,098, Cl. 370-110.100.
Roett, Maurice F.: *See*—
Chuang, Karl T.; Roett, Maurice F.; and Lemon, Francis W., 4,374,907, Cl. 429-57.000.
Roger, Gillet, to Alsthom-Atlantique; and Electricite de France. System for fixing stator winding bars of a dynamo-electric rotating machine. 4,375,043, Cl. 310-258.000.
Rohm and Haas Company: *See*—
Smolanoff, Joel R., 4,374,991, Cl. 546-245.000.
Rokhlin, Eduard A.: *See*—
Azbukin, Vladimir G.; Balandin, Jury F.; Gorynin, Igor V.; Gluskin, Lev Y.; Zvezdin, Jury I.; Ignatenko, Alexandr G.; Krasnov, Alexandr N.; Melekhov, Rostislav K.; Osipova, Inna S.; Pavlov, Valery N.; Khokhlov, Alexandr A.; Stepanov, Ivan A.; Anfimov, Alexandr F.; Ardentov, Vasily V.; Burmakin, Viktor M.; Ignatov, Viktor A.; Rokhlin, Eduard A.; and Zhitkov, Vladimir V., 4,374,680, Cl. 148-2.000.
Rolls Royce Limited: *See*—
Sotheran, Arthur, 4,374,466, Cl. 60-39.360.
Romanet, Rene: *See*—
Escher, Balint; Prince, Dominique; and Romanet, Rene, 4,375,075, Cl. 361-433.000.
Ropke, Gunther: *See*—
Papst, Gero; Ropke, Gunther; and Topfer, Hans J., 4,374,585, Cl. 266-81.000.
Rosati, Alfonso A.: *See*—
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Rosemount Office Systems, Inc.: *See*—
Mollenkopf, Lloyd C., 4,375,010, Cl. 174-48.000.
Rothwell, Ronald E.; Rowan, Hugh H.; and Dunbar, James J., to Allied Corporation. Production of polyester fibers of improved stability. 4,374,960, Cl. 525-436.000.
Rous, Craig: *See*—
Kunkee, Ralph E.; Snow, S. Richard; and Rous, Craig, 4,374,859, Cl. 426-14.000.
Rouse, Michael W.; and Thelen, Robert L. Apparatus for shredding rubber tires and other waste materials. 4,374,573, Cl. 241-101.700.
Rowan, Hugh H.: *See*—
Rothwell, Ronald E.; Rowan, Hugh H.; and Dunbar, James J., 4,374,960, Cl. 525-436.000.
Ruggles, Roger, to Isokinetic Sales Co. Isokinetic exercise device with speed control. 4,374,588, Cl. 272-132.000.
Runge, Richard J.: *See*—
Thompson, Don D.; Brown, Robert J. S.; and Runge, Richard J., 4,375,090, Cl. 367-73.000.
Ruwart, Mary J., to Upjohn Company, The. Liver cytoprotection using PGE's. 4,374,856, Cl. 424-317.000.
Ryan, Ralph L., to Compensating Tension Controls, Inc. Semi-automatic roll winding machine. 4,374,576, Cl. 242-58.400.
Rymwid, Yvonne: *See*—
El-Shazly, Mohamed F.; Baker, Kenneth D.; and Rymwid, Yvonne, 4,374,876, Cl. 427-443.100.
S. A. Labaz N.V.: *See*—
Descamps, Marcel; Urbain, Marcel, deceased; Urbain, Claire, legal representative; Urbain, Jacques J. Z., legal representative; Urbain, Jean P. M. C., legal representative; and Urbain, Nadine C. J., legal representative, 4,374,841, Cl. 424-263.000.
S.T.I. Strumentazione Industriale S.p.A.: *See*—
Lattuada, Sergio, 4,374,485, Cl. 91-387.000.
Saam, John C.: *See*—
Chou, Yungnien J.; and Saam, John C., 4,374,953, Cl. 525-153.000.
Sach, George S.: *See*—
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Saffa S.p.A.: *See*—
Molla, Pietro, 4,374,706, Cl. 203-91.000.
Saito, Cyuichi, to Hitachi, Ltd. Steps of passenger conveyor. 4,374,558, Cl. 198-333.000.
Saito, Kiyoshi: *See*—
Kikuchi, Akira; Hagiya, Akio; Shinkai, Kazuteru; Kohno, Masaru; and Saito, Kiyoshi, 4,374,477, Cl. 73-861.180.
Saito, Thutomu: *See*—
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Sakazaki, Yoshitami: *See*—
Hayakawa, Masatoshi; and Sakazaki, Yoshitami, 4,375,024, Cl. 219-56.000.
Sakhuja, Ravinder K.; Cole, William E.; and Pavlakis, Dimitris, to Thermo Electron Corporation. Fluidized bed glass batch preheater. 4,374,660, Cl. 65-335.000.
Sakura, Naoki: *See*—
Folkers, Karl; Kubiak, Teresa M.; Stepien, Henryk M.; and Sakura, Naoki, 4,374,828, Cl. 424-177.000.
Sakurai, Kanji: *See*—
Isozaki, Shin; Sasaki, Masaru; and Sakurai, Kanji, 4,375,070, Cl. 360-75.000.
Samson, Marc: *See*—
Kleemann, Axel; and Samson, Marc, 4,374,995, Cl. 548-309.000.
Sandberg, Karen R.: *See*—
Turbak, Albin F.; Snyder, Fred W.; and Sandberg, Karen R., 4,374,702, Cl. 162-100.000.
Sanders, Franciscus H. M.: *See*—
Sanders, Jozef A. M.; Sanders, Franciscus H. M.; Kalter, Hendrikus; and van de Ven, Everhardus P. G. T., 4,374,698, Cl. 156-643.000.
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Sanders, Jozef A. M.; Sanders, Franciscus H. M.; Kalter, Hendrikus; and van de Ven, Everhardus P. G. T., to U.S. Philips Corporation. Method of manufacturing a semiconductor device. 4,374,698, Cl. 156-643.000.
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Sanderson, Roger S.; and Whelchel, Robert C. Sterilized storage container. 4,374,570, Cl. 236-92.00R.
Sandgren, Kurt K.; and Selving, Hans V. L., to Telefonaktiebolaget L M Ericsson. Method of impregnating a cable. 4,374,870, Cl. 427-120.000.
Sandstrom, Paul H., to Goodyear Tire & Rubber Company, The. Particle size control of SBR/carbon black powder. 4,374,941, Cl. 523-206.000.

Sanfilippo, Salvatore G.; and White, James T., to Reichhold Chemicals, Incorporated. Hardboard treating composition and process for forming hardboard surfaces. 4,374,899, Cl. 428-514.000.

Sankyo Company, Limited: *See*—
Arai, Mamoru; Haneishi, Tatsuo; and Nakajima, Mutsuo, 4,374,764, Cl. 260-112.50R.

Sanuki, Shin-ichi: *See*—
Mitsuo, Toshiharu; Shoji, Takeshi; and Sanuki, Shin-ichi, 4,374,664, Cl. 75-58.000.

Sasaki, Koichi; Ishida, Hiroshi; Sumida, Yasuji; and Tanaka, Akira, to Mita Industrial Co., Ltd. Image-forming apparatus having a photosensitive member transfer mechanism. 4,374,616, Cl. 355-3.0CH.

Sasaki, Masaru: *See*—
Isozaki, Shin; Sasaki, Masaru; and Sakurai, Kanji, 4,375,070, Cl. 360-75.000.

Sasaki, Yoji: *See*—
Kaneki, Satoru; Kikuchi, Yuzi; and Sasaki, Yoji, 4,374,912, Cl. 430-5.000.

Sasaki, Yutaka; and Nakamura, Yoshimi, to Nitto Chemical Industry Co., Ltd. Preparation of stable tellurium-containing solution from metallic tellurium and process for producing tellurium-antimony containing oxide catalyst using said solution. 4,374,758, Cl. 252-439.000.

Sato, Hideo: *See*—
Inuksi, Takashi; Sato, Hideo; Inoue, Hiromichi; and Fukui, Masahiro, 4,374,748, Cl. 252-299.660.

Sato, Seiichi: *See*—
Shiratsuchi, Masami; Shimizu, Noboru; Shigyo, Hiromichi; Kyotani, Yoshinori; Kunieda, Hisashi; Kawamura, Kiyoshi; Sato, Seiichi; Akashi, Toshihiro; Nagakura, Masahiko; Sawada, Naotoshi; and Uchida, Yasumi, 4,374,840, Cl. 424-263.000.

Satoh, Koji: *See*—
Nagaoka, Shinji; and Satoh, Koji, 4,374,615, Cl. 354-238.000.

Sauerwein, William D., to Black & Decker Inc. Brush holder assembly. 4,375,040, Cl. 310-239.000.

Savage, Frances H., to Procter & Gamble Co., The. Compositions and methods for providing nonadherent dough for baked goods. 4,374,863, Cl. 426-553.000.

Sawada, Naotoshi: *See*—
Shiratsuchi, Masami; Shimizu, Noboru; Shigyo, Hiromichi; Kyotani, Yoshinori; Kunieda, Hisashi; Kawamura, Kiyoshi; Sato, Seiichi; Akashi, Toshihiro; Nagakura, Masahiko; Sawada, Naotoshi; and Uchida, Yasumi, 4,374,840, Cl. 424-263.000.

Sawai, Kiyoshi; and Kawase, Takao, to Chisso Engineering Co. Ltd. Distillation for alcohol. 4,374,705, Cl. 203-19.000.

Schaefer, Frederic C.: *See*—
Singh, Balwant; and Schaefer, Frederic C., 4,374,987, Cl. 544-260.000.

Schechter, Michael M., to Ford Motor Company. Fuel injection pump with distributor type fuel control. 4,374,511, Cl. 123-448.000.

Schendel, Ronald L.; and Selleck, Frederic T., to Fluor Corporation. Process of separating acid gases from hydrocarbons. 4,374,657, Cl. 62-19.000.

Schenk, Hanspeter: *See*—
Givaudan Corporation; and Schenk, Hanspeter, 4,375,001, Cl. 560-128.000.

Schering Aktiengesellschaft: *See*—
Plum, Hans; and Schroeer, Ulrich, 4,374,778, Cl. 260-429.700.

Schering Corporation: *See*—
Mc Combie, Stuart W., 4,374,844, Cl. 424-270.000.

Schindler, Joachim: *See*—
Struve, Alfred; Hill, Frank F.; and Schindler, Joachim, 4,374,776, Cl. 260-397.250.

Schlemmer, Josef; and Konig, Adolf, to Josef Schlemmer GmbH. Pipe-form connector for cable ducts. 4,374,596, Cl. 285-305.000.

Schlig, Eugene S., to International Business Machines Corporation. Fast charge transfer analog-to-digital converter. 4,375,059, Cl. 340-347.0AD.

Schmelzer, Eugene; and Tagamolila, Constante P., to UOP Inc. Separation of hydrogen from a catalytic reforming zone effluent stream. 4,374,726, Cl. 208-101.000.

Schmidt, Helmut; Tunker, Gerhard; and Scholze, Horst, to Fraunhofer-Gesellschaft. Method of heat-sealing substrates. 4,374,696, Cl. 156-329.000.

Schmidt, Helmut: *See*—
Scholze, Horst; Schmidt, Helmut; and Bottner, Harald, 4,374,933, Cl. 521-64.000.

Schmidt, Manfred; Freitag, Dieter; and Bottenbruch, Ludwig, to Bayer Aktiengesellschaft. Process for the preparation of thermoplastic aromatic polyphosphonates with improved thermal ageing resistance. 4,374,971, Cl. 528-167.000.

Schmitt, Frederick L.: *See*—
Kiwala, Jacob; Tokarzewski, Richard J.; Schmitt, Frederick L.; and Sprecker, Mark A., 4,374,746, Cl. 252-174.110.

Schneider, Morris D., to Research Corp. Platelet aggregating material from equine arterial tissue. 4,374,830, Cl. 424-177.000.

Schoen, Ernst: *See*—
Decker, Walter; Schoen, Ernst; Grabhoefer, Herbert; and Weyland, Peter, 4,374,935, Cl. 521-173.000.

Schoen, Peter F.: *See*—
Ahlquist, C. Norman; Hu, Yaw Wen; Schoen, Peter F.; and Poenisch, Paul A., 4,374,915, Cl. 430-22.000.

Scholze, Horst; Schmidt, Helmut; and Bottner, Harald, to Fraunhofer-Gesellschaft. Method of preparation of porous membranes and adsorbents. 4,374,933, Cl. 521-64.000.

Scholze, Horst: *See*—
Schmidt, Helmut; Tunker, Gerhard; and Scholze, Horst, 4,374,696, Cl. 156-329.000.

Schrenker, Helge; and Hupe, Peter, to Hewlett-Packard GmbH. Apparatus for solvent degassing and solvent supply in liquid chromatographs. 4,374,656, Cl. 55-170.000.

Schroeer, Ulrich: *See*—
Plum, Hans; and Schroeer, Ulrich, 4,374,778, Cl. 260-429.700.

Schroeter, Siegfried H.: *See*—
Ashby, Bruce A.; and Schroeter, Siegfried H., 4,374,674, Cl. 106-287.120.

Schueneman, John E., to Coral Chemical Company. System for controlling the composition of chemical treatment baths. 4,374,681, Cl. 148-6.14R.

Schulz, Walther: *See*—
Lindorfer, Walter; Schulz, Walther; Wagner, Fritz; and Jahn-Held, Wilhelm, 4,374,735, Cl. 210-772.000.

Schwaegerl, Walter: *See*—
Braha, Alexandru; Daucher, Hans; Hess, Klaus; Kroetzsch, Peter; Merkel, Helmut; Roedl, Roland; Schwaegerl, Walter; and Stickel, Richard, 4,374,730, Cl. 210-608.000.

Scott, David B.; Davies, Roderick D.; and See, Yee-Chaung, to Texas Instruments Incorporated. Method of manufacturing silicide contacts for CMOS devices. 4,374,700, Cl. 156-656.000.

Scott, Edwin C. Security bars. 4,374,598, Cl. 292-259.00R.

Scott Machine Development Corporation: *See*—
Waldron, Gregory R., 4,374,887, Cl. 428-195.000.

Scott, Robert N.: *See*—
Kenner, Jacqueline M.; Scott, Robert N.; and Gavin, David F., 4,374,986, Cl. 544-221.000.

Scotti, Carlo; Pace, Renato C.; and Carra', Sergio, to Montedison, S.p.A. Post-treated titanium dioxide and process for producing same. 4,374,675, Cl. 106-300.000.

Secord, Fanny E. P., executor: *See*—
Secord, Herbert C., deceased; and Secord, Fanny E. P., executor, 4,374,478, Cl. 73-863.310.

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See, Yee-Chaung: *See*—
Scott, David B.; Davies, Roderick D.; and See, Yee-Chaung, 4,374,700, Cl. 156-656.000.

Seiko Koki Kabushiki Kaisha: *See*—
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Selleck, Frederic T.: *See*—
Schendel, Ronald L.; and Selleck, Frederic T., 4,374,657, Cl. 62-19.000.

Selving, Hans V. L.: *See*—
Sandgren, Kurt K.; and Selving, Hans V. L., 4,374,870, Cl. 427-120.000.

Senda, Jihei; Inoue, Yoshihiro; Uenishi, Toshiaki; Harada, Hidefumi; Nakata, Kouji; Akagi, Akio; and Yamasaki, Takanori, to Titan Kogyo K.K. Heat stable yellow iron oxides containing antimony. 4,374,676, Cl. 106-303.000.

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Sharp Kabushiki Kaisha: *See*—
Arai, Nobushige, 4,374,754, Cl. 252-430.000.
Kuwagaki, Hiroshi; Yano, Kozo; and Takechi, Sadatoshi, 4,374,610, Cl. 350-357.000.

Shave, David G.: *See*—
Thigpen, Ben B.; Crump, Eldon E.; and Shave, David G., 4,375,089, Cl. 367-20.000.

Shedd, Charles D.; and Stone, Allen L., to Uniroyal, Inc. Nitrile rubber-/EPDM graft blends. 4,374,952, Cl. 525-87.000.

Sheldahl, Inc.: *See*—
Petersen, Stephen K., 4,375,018, Cl. 200-5.00A.

Shell Oil Company: *See*—
Badmin, John S.; and Mears, Barry J., 4,374,833, Cl. 424-225.000.
Freye, Anne D.; and van Arkel, Johan A., 4,374,653, Cl. 55-18.000.

Shepherd, John A.: *See*—
Lehman, Richard L.; and Shepherd, John A., 4,374,817, Cl. 423-319.000.

Sherliker, Francis R.: *See*—
Nemcek, Jozef; Roberts, Thomas A.; and Sherliker, Francis R., 4,374,937, Cl. 523-116.000.

Sherritt Gordon Mines Limited: *See*—
Weir, Donald R.; Kerfoot, Derek G. E.; and Hofirek, Zdenek, 4,374,808, Cl. 423-42.000.

Shigyo, Hiromichi: *See*—
Shiratsuchi, Masami; Shimizu, Noboru; Shigyo, Hiromichi; Kyotani, Yoshinori; Kunieda, Hisashi; Kawamura, Kiyoshi; Sato, Seiichi; Akashi, Toshihiro; Nagakura, Masahiko; Sawada, Naotoshi; and Uchida, Yasumi, 4,374,840, Cl. 424-263.000.

Shimauchi, Hisaaki: *See*—
Ishimi, Hiroshi; Shimauchi, Hisaaki; and Tanaka, Chuzaburo, 4,374,807, Cl. 423-11.000.

Shimeki, Yasuharu: *See*—
Tsuji, Shiro; Matsushima, Hiroshi; Shimeki, Yasuharu; Kihara, Nobuyoshi; and Kato, Misao, 4,375,100, Cl. 371-38.000.

Shimizu, Chiyuki, to Toshiba Silicone Co., Ltd. Adhesive polyorganosiloxane composition. 4,374,950, Cl. 524-765.000.

Shimizu, Masato; Asoshina, Eishi; Tominaga, Takashi; and Muguruma, Tadahiro, to Nitto Electric Industrial Co., Ltd. Adhesive-sheet for

the reinforcement of metal plates and method of reinforcing metal plates. 4,374,890, Cl. 428-212.000.

Shimizu, Noboru: *See—*
Shiratsuchi, Masami; Shimizu, Noboru; Shigyo, Hiromichi; Kyotani, Yoshinori; Kunieda, Hisashi; Kawamura, Kiyoshi; Sato, Seiichi; Akashi, Toshihiro; Nagakura, Masahiko; Sawada, Naotoshi; and Uchida, Yasumi, 4,374,840, Cl. 424-263.000.

Shimizu, Taku: *See—*
Atsukawa, Masumi; Shinoda, Naoharu; Tatani, Atsushi; and Shimizu, Taku, 4,374,812, Cl. 423-242.000.

Shinkai, Kazuteru: *See—*
Kikuchi, Akira; Hagiya, Akio; Shinkai, Kazuteru; Kohno, Masaru; and Saito, Kiyoshi, 4,374,477, Cl. 73-861.180.

Shinoda, Naoharu: *See—*
Atsukawa, Masumi; Shinoda, Naoharu; Tatani, Atsushi; and Shimizu, Taku, 4,374,812, Cl. 423-242.000.

Shionogi & Co., Ltd.: *See—*
Hirai, Kentaro; Matsutani, Shigeru; Makino, Itsuo; and Ishiba, Teruyuki, 4,374,842, Cl. 424-269.000.

Shirahata, Kunikatsu: *See—*
Kasai, Masaji; Kono, Motomichi; and Shirahata, Kunikatsu, 4,374,774, Cl. 548-422.000.

Shiratsuchi, Masami; Shimizu, Noboru; Shigyo, Hiromichi; Kyotani, Yoshinori; Kunieda, Hisashi; Kawamura, Kiyoshi; Sato, Seiichi; Akashi, Toshihiro; Nagakura, Masahiko; Sawada, Naotoshi; and Uchida, Yasumi, to Kowa Company, Ltd. Certain phenyl or pyridylpropanol-amines containing alkyl-nitrate moieties. 4,374,840, Cl. 424-263.000.

Shiseido Company, Ltd.: *See—*
Ogasawara, Hirotake; Hatakeyama, Yoshiharu; and Ishiguro, Mitsuo, 4,374,796, Cl. 264-101.000.

Shoff, Daniel J., to Mattel, Inc. Digitally driven audio effects generator. 4,375,061, Cl. 340-384.00E.

Shoji, Takeshi: *See—*
Mitsuo, Toshiharu; Shoji, Takeshi; and Sanuki, Shin-ichi, 4,374,664, Cl. 75-58.000.

Showa Kagaku Kogyo Co., Ltd: *See—*
Suzuki, Kazuaki; and Kuwabara, Shohei, 4,374,643, Cl. 8-648.000.

Sibley, Murray J.; and Nite, Rebecca F., to Barnes-Hind Pharmaceuticals, Inc. Cleaning compositions. 4,374,745, Cl. 252-106.000.

Siemens Aktiengesellschaft: *See—*
Baumann, Heinz, 4,375,105, Cl. 378-092.000.
Dathe, Joachim, 4,375,008, Cl. 174-17.050.
Gerke, Peter; Arndt, Gerhard; Roescheisen, Friedrich; and Bruentrup, Heinrich, 4,375,098, Cl. 370-110.100.
Heinzl, Alfred; and Stadler, Heinz, 4,374,531, Cl. 141-82.000.
Heyneman, Guido, 4,374,582, Cl. 251-62.000.
Hudek, Karl, deceased; and Kusserow, Bernd, 4,374,524, Cl. 128-420.00A.

Simon, Jerome H. Light beam clock. 4,374,623, Cl. 368-79.000.

Sims, Larry A.: *See—*
Grossmann, Frederic; and Sims, Larry A., 4,374,520, Cl. 128-132.00D.

Sindo, Tiuzi; Obara, Tadashi; and Adachi, Hidenari, to Yamanouchi Pharmaceutical Co., Ltd. Water soluble extract from nonpathogenic aerobic corynebacteria. 4,374,827, Cl. 424-92.000.

Singer Company, The: *See—*
Ketterer, Stanley J., 4,374,503, Cl. 112-163.000.

Singh, Balwant; and Novak, Robert W., to American Cyanamid Company. Blocked isocyanate. 4,374,771, Cl. 260-239.30R.

Singh, Balwant; and Schaefer, Frederic C., to American Cyanamid Company. Process for the preparation of high purity methotrexate and derivatives thereof. 4,374,987, Cl. 544-260.000.

Singh, Raj N., to General Electric Company. Chemically polished ceramic body. 4,374,701, Cl. 156-667.000.

Sirbu, Victor: *See—*
Keilp, John P.; Moore, Warren F.; and Sirbu, Victor, 4,374,795, Cl. 264-152.000.

SK & F Lab Co.: *See—*
Labaw, Clifford S.; and Wellman, George R., 4,374,996, Cl. 548-342.000.

SKF Kugellagerfabriken GmbH: *See—*
Olschewski, Armin; Brandenstein, Manfred; Walter, Lothar; and Ernst, Horst M., 4,374,556, Cl. 192-98.000.

Sliemers, Francis A.: *See—*
Drauglis, Edmund; Wielonski, Roy F.; and Sliemers, Francis A., 4,374,717, Cl. 204-192.00C.

Slocombe, Robert J., to Monsanto Company. Aqueous polymeric latex coating compositions, products produced thereby, methods for preparing such compositions, and methods for using such compositions. 4,374,670, Cl. 106-20.000.

Small, Byron L.: *See—*
Cocco, Eugene R.; Pflugrad, William G.; and Small, Byron L., 4,375,012, Cl. 174-69.000.

Smith, Dale E.; and Pinter, Warren H., to United Technologies Corporation. Method and apparatus for filament winding. 4,374,689, Cl. 156-169.000.

Smith, Gerald D.: *See—*
Allain, Ronald J.; and Smith, Gerald D., 4,375,003, Cl. 564-492.000.

Smith, John R.; Bingle, William D.; and Austin, Lowell W., to National Steel Corporation. Nickel-zinc alloy coated steel sheet. 4,374,902, Cl. 428-621.000.

Smith Laboratories, Inc.: *See—*
Stern, Ivan J., 4,374,926, Cl. 435-23.000.

Smith, Michael A.: *See—*
Worthington, Ralph E.; Smith, Michael A.; and Tobias, John M., 4,374,805, Cl. 423-10.000.

Smith, Roger R.; and Celentino, James L., to United States of America, Army. Towbar assembly. 4,374,593, Cl. 280-491.00E.

Smith, Theodore D., to RCA Corporation. Calculator type keyboard including printed circuit board contacts and method of forming. 4,375,017, Cl. 200-5.00A.

SmithKline & French Laboratories Limited: *See—*
Durant, Graham J.; Ganellin, Charon R.; and Sach, George S., 4,374,839, Cl. 424-263.000.

Smolanoff, Joel R., to Rohm and Haas Company. 2,6-Dimethylpiperidinyl-N-carbobutoxymethyl urea. 4,374,991, Cl. 546-245.000.

Snimsky, John J.; and Cohen, Stanley N., to Leland Stanford Jr. University, The Board of Trustees of the. Extrachromosomal regulation of expression. 4,374,927, Cl. 435-68.000.

Snoke, Roy E.; and Goodhue, Charles T., to Eastman Kodak Company. Method for the purification of cholesterol oxidase. 4,374,930, Cl. 435-190.000.

Snow, S. Richard: *See—*
Kunkee, Ralph E.; Snow, S. Richard; and Rous, Craig, 4,374,859, Cl. 426-14.000.

Snyder, Fred W.: *See—*
Turbak, Albin F.; Snyder, Fred W.; and Sandberg, Karen R., 4,374,702, Cl. 162-100.000.

Snyder, William R.; and Feuerstein, Diane, to Betz Laboratories, Inc. Method for treating aqueous mediums. 4,374,733, Cl. 210-701.000.

Socapex: *See—*
Holvoet, Gerard; and Legrand, Jacques, 4,375,055, Cl. 335-56.000.

Societe Anonyme de Telecommunications: *See—*
Cointot, Denis; Langlois, Patrice; and de Passoz, Guy, 4,375,013, Cl. 179-15.55R.

Societe D'Assistance Technique Pour Produits Nestle S.A.: *See—*
Gasser, Rupert J.; and Badertscher, Ernest, 4,374,860, Cl. 426-28.000.
Hufnagel, Willi; Blanc, Maurice; and Balimann, Walter, 4,374,864, Cl. 426-594.000.

Societe E. Lacroix-Tous Artifices: *See—*
Maury, Louis, 4,374,494, Cl. 102-357.000.

Soder, Alfons: *See—*
Weber, Rolf-Ortwin; Soder, Alfons; and Boksay, Istvan, 4,374,990, Cl. 544-376.000.

Solic Co., Ltd.: *See—*
Yoshida, Kenji, 4,375,019, Cl. 200-52.00R.

Sonoco Products Company: *See—*
Horton, John D., 4,374,568, Cl. 229-5.500.

Sotheran, Arthur, to Rolls Royce Limited. Gas turbine engine. 4,374,466, Cl. 60-39.360.

Sparks, Colin R.: *See—*
Hilditch, Edward A.; Hambling, Robert E.; Sparks, Colin R., and Walker, David A., 4,374,852, Cl. 424-289.000.

Speigel, Hubert: *See—*
Wuthrich, Hans-Rudolf; Speigel, Hubert; Lehner, Hermann; and Krebs, Peter, 4,375,023, Cl. 200-148.00R.

Spera, Claudio. Jib crane with polycentrical trajectory. 4,374,566, Cl. 212-199.000.

Sperry Corporation: *See—*
Viola, Raymond D.; and Hanley, Gerard L., 4,375,053, Cl. 333-116.000.

Spinelli, Richard A.; and Bock, Edward C., to Xerox Corporation. Variable magnification copying apparatus. 4,374,619, Cl. 355-57.000.

Sprecher & Schuh AG: *See—*
Wuthrich, Hans-Rudolf; Speigel, Hubert; Lehner, Hermann; and Krebs, Peter, 4,375,023, Cl. 200-148.00R.

Sprecker, Mark A., to International Flavors & Fragrances Inc. Norbornyl alkyl ethers. 4,375,004, Cl. 568-665.000.

Sprecker, Mark A.: *See—*
Kiwala, Jacob; Tokarzewski, Richard J.; Schmitt, Frederick L.; and Sprecker, Mark A., 4,374,746, Cl. 252-174.110.

Stadler, Heinz: *See—*
Heinzl, Alfred; and Stadler, Heinz, 4,374,531, Cl. 141-82.000.

Stahl, Fritz; and Steffen, Horst, to Kollmorgen Technologies Corporation. Method for producing printed circuit boards with punched holes having metallized walls. 4,374,868, Cl. 427-97.000.

Standard Oil Company, The: *See—*
Adams, Richard C.; and Waisala, Steven J., 4,374,948, Cl. 524-516.000.

Standard Oil Company (Indiana): *See—*
Weisrock, William P.; and Klein, Harriet S., 4,374,929, Cl. 435-104.000.
Westerman, Granval W.; and Otwell, Corbett L., 4,374,544, Cl. 166-252.000.

Starks, Charles M.: *See—*
Berge, Charles T.; Mack, Mark P.; and Starks, Charles M., 4,374,755, Cl. 252-431.00R.

Starr, James A.; and Steinert, Leopold A., to General Electric Company. Pool gateway seal. 4,375,104, Cl. 376-203.000.

Starun, Victor. Internal combustion engine having provisions for heating the fuel-air mixture prior to injection into the cylinders. 4,374,512, Cl. 123-556.000.

Stauffer Chemical Company: *See—*
Arzoumanidis, Gregory G.; and Darragh, Kirk V., 4,374,816, Cl. 423-304.000.

Stauft, Amos K. Spinal massage device. 4,374,519, Cl. 128-57.000.

Steady, Glendon T.: *See*—
Ashburn, Donald G.; and Steady, Glendon T., 4,374,944, Cl. 524-66.000.

Steffes, Horst: *See*—
Stahl, Fritz; and Steffen, Horst, 4,374,868, Cl. 427-97.000.

Stein, Reinhardt P., to American Home Products Corporation. Nitrosoamino-actonitriles. 4,374,779, Cl. 260-465.00E.

Steinbis, Fritz K., to Kollross, Gunter. Procedure and device for oiling the inside of tubular casings. 4,374,871, Cl. 427-236.000.

Steinert, Leopold A.: *See*—
Starr, James A.; and Steinert, Leopold A., 4,375,104, Cl. 376-203.000.

Stempeck, John W., to Polaroid Corporation. Auto/manual camera employing common lens focusing data. 4,374,613, Cl. 354-196.000.

Stepanov, Ivan A.: *See*—
Azbukin, Vladimir G.; Balandin, Jury F.; Gorynin, Igor V.; Gluskin, Lev Y.; Zvezdin, Jury I.; Ignatenko, Alexandr G.; Krasnov, Alexandr N.; Melekhov, Rostislav K.; Osipova, Inna S.; Pavlov, Valery N.; Khokhlov, Alexandr A.; Stepanov, Ivan A.; Anfimov, Alexandr F.; Ardentov, Vasily V.; Burmakin, Viktor M.; Ignatov, Viktor A.; Rokhlin, Eduard A.; and Zhitkov, Vladimir V., 4,374,680, Cl. 148-2.000.

Stephens, Thomas P.: *See*—
Fearnside, James T.; and Stephens, Thomas P., 4,375,009, Cl. 174-36.000.

Stephenson, Robert L.; and Pfeiffer, Robert C., to Allied Corporation. Mini seat belt buckle. 4,374,449, Cl. 24-230.0AL.

Stepien, Henryk M.: *See*—
Folkers, Karl; Kubiak, Teresa M.; Stepien, Henryk M.; and Sakura, Naoki, 4,374,828, Cl. 424-177.000.

Stern, Ivan J., to Smith Laboratories, Inc. Method for the production of improved chymopapain. 4,374,926, Cl. 435-23.000.

Stewart, Roy, to British Nuclear Fuels Limited. Pressing ceramic powders. 4,374,787, Cl. 264-0.500.

Stickel, Richard: *See*—
Braha, Alexandru; Daucher, Hans; Hess, Klaus; Kroetzsch, Peter; Merkel, Helmut; Roedl, Roland; Schwaegerl, Walter; and Stickel, Richard, 4,374,730, Cl. 210-608.000.

Stille, Larry, to David Manufacturing Company. Apparatus for controlling power delivery to a grain stirring device. 4,374,621, Cl. 366-261.000.

Stine, Jon D.: *See*—
Crowley Daniel J.; and Stine, Jon D., 4,375,071, Cl. 360-104.000.

Stockel, Richard F. Method of preparing snow and ice control compositions. 4,374,743, Cl. 252-70.000.

Stone, Allen L.: *See*—
Shedd, Charles D.; and Stone, Allen L., 4,374,952, Cl. 525-87.000.

Stora Kopparbergs Bergslags AB: *See*—
Collin, Per H.; and Bengtsson, Erik A., 4,374,663, Cl. 75-26.000.

Stormon, Harry J.: *See*—
Gurries, Raymond A.; and Stormon, Harry J., 4,374,602, Cl. 299-37.000.

Stortroen, Don J.; and Brown, Michael L. Apparatus for treating and disposing of bio-hazardous waste and solid waste. 4,374,491, Cl. 100-73.000.

Stout, James T.; and Wood, Prentice J., to Mead Corporation, The. Article carrier. 4,374,561, Cl. 206-188.000.

Stricker, Charles D.: *See*—
Bakewell, Frank W.; and Stricker, Charles D., 4,374,719, Cl. 204-202.000.

Strickland, Gordon E. Handle for tennis racket with anti-torsion grip portion. 4,374,589, Cl. 273-75.000.

Strobel, Rudolf G., to Procter & Gamble Company, The. Orange juice concentrate. 4,374,865, Cl. 426-599.000.

Struve, Alfred; Hill, Frank F.; and Schindler, Joachim, to Henkel Kommanditgesellschaft auf Aktien. Sterol concentrates, the preparation thereof, and their use in the transformation of sterols by fermentation. 4,374,776, Cl. 260-397.250.

Stubbens, Neil A.: *See*—
Ricketts, Martin W.; and Stubbens, Neil A., 4,375,079, Cl. 364-518.000.

Stuck, Earl N.; Pigney, Keith D.; and Gifford, Howard, to Teledyne Industries, Inc. Metallic particle generation device. 4,374,789, Cl. 264-12.000.

Sturm, Gary V., to International Business Machines Corporation. Aspirator for an ink jet printer. 4,375,062, Cl. 346-75.000.

Sugimoto, Osamu; Akagawa, Masaki; and Hayashi, Yukichi, to Kabushiki Kaisha Nippon Coinco. Coin changer for a vending machine. 4,374,557, Cl. 194-100.00A.

Sugimoto, Tadao: *See*—
Hirano, Shigeo; Sugimoto, Tadao; and Tsujino, Nobuyuki, 4,374,923, Cl. 430-410.000.

Sumeghy, Gabor, to IV. Ker. Epitoipari Szovetkezet. Process for producing a surface veneer on furniture and the like. 4,374,692, Cl. 156-244.110.

Sumida, Yasuji: *See*—
Sasaki, Koichi; Ishida, Hiroshi; Sumida, Yasuji; and Tanaka, Akira, 4,374,616, Cl. 355-3.0CH.

Sumitomo Chemical Company, Limited: *See*—
Konishi, Hiroyuki; Hino, Naganori; Matsumoto, Hiroshi; and Yoshida, Ryo, 4,374,662, Cl. 71-103.000.

Sumitomo Electric Industry, Ltd.: *See*—
Hara, Akio; and Yaza, Shuji, 4,374,900, Cl. 428-551.000.

Sumitomo Metal Industries, Ltd.: *See*—
Koike, Masao; Hayashi, Yutaka; and Ogaya, Masayoshi, 4,374,683, Cl. 148-12.0EA.

Sumitomo Metal Mining Company Ltd.: *See*—
Ishimi, Hiroshi; Shimauchi, Hisaaki; and Tanaka, Chuzaburo, 4,374,807, Cl. 423-11.000.

Suzuki, Junichiro; and Tanaka, Hiroshi, to NGK Spark Plug Co., Ltd. Method of making a coated cutting tip. 4,374,685, Cl. 148-126.100.

Suzuki, Kazuaki; and Kuwabara, Shohei, to Showa Kagaku Kogyo Co., Ltd. Color salts of basic dyes with acidic optical brighteners of stilbene type. 4,374,643, Cl. 8-648.000.

Suzuki, Takashi: *See*—
Matsumura, Susumu; and Suzuki, Takashi, 4,374,612, Cl. 354-53.000.

Svensson, Sven A., to Mo och Domsjo Aktiebolag. Apparatus for debarking logs and cut timber. 4,374,533, Cl. 144-208.00B.

Swank, Robert K.: *See*—
Cusano, Dominic A.; Swank, Robert K.; and White, Philip J., 4,374,749, Cl. 252-301.360.

Sweeney, W. Alan, to Chevron Research Company. Motor fuel composition. 4,374,648, Cl. 44-56.000.

Syska, Andrew J.: *See*—
Massey, Lester G.; Clawson, Lawrence G.; and Syska, Andrew J., 4,374,540, Cl. 165-1.000.

Syva Company: *See*—
Litman, David J.; Harel, Zvi; and Ullman, Edwin F., 4,374,925, Cl. 435-7.000.

Szala, Lawrence E.: *See*—
Lee, Minyoung; and Szala, Lawrence E., 4,374,651, Cl. 51-309.000.

Szente, Andre: *See*—
Branca, Quirico; Fischli, Albert E.; and Szente, Andre, 4,374,773, Cl. 260-245.500.

Szymonifka, Michael J.: *See*—
Christensen, Burton G.; Heck, James V.; and Szymonifka, Michael J., 4,374,848, Cl. 424-274.000.

T. C. Manufacturing Company, Inc.: *See*—
Blitstein, John; and Kathrein, Donald, 4,374,874, Cl. 427-379.000.

Tabei, Koichi: *See*—
Takahashi, Takeo; and Tabei, Koichi, 4,374,727, Cl. 209-127.00B.

Taga, Akio: *See*—
Ikeda, Eiji; Adachi, Tomohiro; Ito, Yoshihiro; Yamada, Ryozo; Taga, Akio; and Takashima, Shigeo, 4,374,695, Cl. 156-293.000.

Tagamolila, Constante P.: *See*—
Schmelzer, Eugene; and Tagamolila, Constante P., 4,374,726, Cl. 208-101.000.

Tai, Ho T., to Lever Brothers Company. Bleach products. 4,374,747, Cl. 252-186.260.

Tajima Roofing Co., Ltd.: *See*—
Yamamoto, Kaname, 4,374,687, Cl. 156-71.000.

Takagi Manufacturing Co., Ltd.: *See*—
Ueno, Eishin; and Kikuchi, Sho, 4,374,548, Cl. 180-79.000.

Takagi, Takashi, to Morishita Pharmaceutical Co., Ltd. Method for producing gamma-globulin for use in intravenous administration and method for producing a pharmaceutical preparation thereof. 4,374,763, Cl. 260-112.00B.

Takahashi, Shinya, to Pioneer Electronic Corporation. Intermusic detecting circuit for automatic music selecting device. 4,375,093, Cl. 369-41.000.

Takahashi, Takeo; and Tabei, Koichi, to Fuji Electric Co., Ltd. Electrostatic sorting apparatus. 4,374,727, Cl. 209-127.00B.

Takahashi, Yoshikazu: *See*—
Umezawa, Hamao; Takeuchi, Tomio; Tatsuta, Kuniaki; and Takahashi, Yoshikazu, 4,374,980, Cl. 536-6.400.

Takami, Akio; Saito, Thutomu; and Tanaka, Kazutoshi, to NGK Spark Plug Co., Ltd. Process for producing a gas detecting element. 4,374,456, Cl. 29-588.000.

Takami, Akio; and Kondo, Kazuo, to NGK Spark Plug Co., Ltd. Powder having a negative coefficient of linear thermal expansion and a composition containing the same. 4,374,942, Cl. 523-210.000.

Takashima, Shigeo: *See*—
Ikeda, Eiji; Adachi, Tomohiro; Ito, Yoshihiro; Yamada, Ryozo; Taga, Akio; and Takashima, Shigeo, 4,374,695, Cl. 156-293.000.

Take, Yoshiaki: *See*—
Tsuzuki, Kiyoshi; Tanaka, Sigeto; and Take, Yoshiaki, 4,374,697, Cl. 156-580.200.

Takechi, Sadatoshi: *See*—
Kuwagaki, Hiroshi; Yano, Kozo; and Takechi, Sadatoshi, 4,374,610, Cl. 350-357.000.

Takeda Chemical Industries, Ltd.: *See*—
Tsuda, Masahiko; Ohta, Kazuhiko; and Nara, Kiyoshi, 4,374,981, Cl. 536-24.000.

Takemura, Yoshifumi; and Miyazaki, Hirokazu, to Aoi Chemical Inc. Concrete joint sealant. 4,374,946, Cl. 524-271.000.

Takeshita, Isao; and Hozumi, Shiro, to Matsushita Electric Industrial Company. Absorption type refrigeration system including compressor driven auxiliary flow circuits isolated from main circuit. 4,374,468, Cl. 62-333.000.

Takeuchi, Tomio: *See*—
Umezawa, Hamao; Takeuchi, Tomio; Tatsuta, Kuniaki; and Takahashi, Yoshikazu, 4,374,980, Cl. 536-6.400.

Tallback, Gote: *See*—
Magnusson, Harry; Tallback, Gote; and Wennberg, Ake, 4,375,076, Cl. 363-68.000.

Tanaka, Akira: *See*—
Sasaki, Koichi; Ishida, Hiroshi; Sumida, Yasuji; and Tanaka, Akira, 4,374,616, Cl. 355-3.0CH.

Tanaka, Chuzaburo: *See*—
Ishimi, Hiroshi; Shimauchi, Hisaaki; and Tanaka, Chuzaburo, 4,374,807, Cl. 423-11.000.

Tanaka, Hiroshi: *See*—
Suzuki, Junichiro; and Tanaka, Hiroshi, 4,374,685, Cl. 148-126.100.
Tanaka, Kazutoshi: *See*—
Takami, Akio; Saito, Thutomu; and Tanaka, Kazutoshi, 4,374,456, Cl. 29-588.000.
Tanaka, Masanori: *See*—
Kobayashi, Osamu; and Tanaka, Masanori, 4,374,529, Cl. 133-4.00A.
Tanaka, Sigeto: *See*—
Tsuzuki, Kiyoshi; Tanaka, Sigeto; and Take, Yoshiaki, 4,374,697, Cl. 156-580.200.
Tanouchi, Tadao; Kawamura, Masanori; and Hayashi, Masaki, to Kissei Pharmaceutical Co.; and Ono Pharmaceutical Co., Ltd. 1-(7-Carboxy-2-octynyl)imidazole derivatives, pharmaceutical compositions and use. 4,374,845, Cl. 424-273.00R.
Tappe, Horst; Mayer, Hans; and Hofmann, Klaus, to Cassella Aktiengesellschaft. Dyeing-stable modification of a disperse dyestuff, processes for its preparation and use. 4,374,640, Cl. 8-526.000.
Tatani, Atsushi: *See*—
Atsukawa, Masumi; Shinoda, Naoharu; Tatani, Atsushi; and Shimizu, Taku, 4,374,812, Cl. 423-242.000.
Tatsuta, Kuniaki: *See*—
Umezawa, Hamao; Takeuchi, Tomio; Tatsuta, Kuniaki; and Takahashi, Yoshikazu, 4,374,980, Cl. 536-6.400.
Taylor, Chester J.; and Hinkley, Carl O., to United States of America, Army. Vehicle cargo box cover. 4,374,601, Cl. 296-63.000.
Technicare Corporation: *See*—
McBride, Thomas R., 4,375,068, Cl. 358-111.000.
Teepak, Inc.: *See*—
Martinek, Thomas W., 4,374,447, Cl. 17-1.00R.
Teledyne Industries, Inc.: *See*—
Stuck, Earl N.; Pigney, Keith D.; and Gifford, Howard, 4,374,789, Cl. 264-12.000.
Telefonaktiebolaget L M Ericsson: *See*—
Sandgren, Kurt K.; and Selving, Hans V. L., 4,374,870, Cl. 427-120.000.
Tell, Benjamin: *See*—
Nahory, Robert E.; and Tell, Benjamin, 4,374,867, Cl. 427-38.000.
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Olinger, Rainer; and van den Bossche, Andre, 4,374,762, Cl. 252-631.000.
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van de Ven, Everhardus P. G. T.: *See*—
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Fraser, Thomas A., Jr., 4,374,630, Cl. 405-224.000.
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Voll, Walter. Remote control circuit. 4,375,106, Cl. 455-603.000.
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Wojcik, Thaddeus A.; Kobuck, Richard M.; and Antol, Ronald F., 4,374,462, Cl. 51-411.000.
Weyland, Peter: *See*—
Decker, Walter; Schoen, Ernst; Grabhoefer, Herbert; and Weyland, Peter, 4,374,935, Cl. 521-173.000.
Whalen, Daniel A. Automatic flue gas heat recovery system. 4,374,506, Cl. 122-20.00B.
Whelchel, Robert C.: *See*—
Sanderson, Roger S.; and Whelchel, Robert C., 4,374,570, Cl. 236-92.00R.
White, James T.: *See*—
Sanfilippo, Salvatore G.; and White, James T., 4,374,899, Cl. 428-514.000.
White, Jonathan C.: *See*—
Bjorkholm, John E.; and White, Jonathan C., 4,375,033, Cl. 250-251.000.
White, Philip J.: *See*—
Cusano, Dominic A.; Swank, Robert K.; and White, Philip J., 4,374,749, Cl. 252-301.360.
Whitehurst, Darrell D.; Mitchell, Thomas O.; and Farcasiu, Malvina, to Electric Power Research Institute. Process for coal liquefaction. 4,374,725, Cl. 208-8.0LE.
Wiech, Raymond E., Jr. Method of fabricating complex micro-circuit boards and substrates. 4,374,457, Cl. 29-591.000.
Wiegner, Dieter: *See*—
Brandt, Horst; Hornle, Reinhold; Buchele, Richard; and Wiegner, Dieter, 4,374,642, Cl. 8-639.000.
Wielonski, Roy F.: *See*—
Drauglis, Edmund; Wielonski, Roy F.; and Sliemers, Francis A., 4,374,717, Cl. 204-192.00C.
Wiener, Dieter. Dressing apparatus for cup-type abrasive wheels as used for grinding spiral bevel gearwheels. 4,374,513, Cl. 125-11.0CD.
Wiersum, Ulfert E.: *See*—
Verhelst, Willem F.; and Wiersum, Ulfert E., 4,374,938, Cl. 523-124.000.
Wilcox, Jack W., to Abex Corporation. Vane control for a vane motor. 4,374,632, Cl. 418-267.000.
Williams, James B., to Data General Corporation. Power supply regulator circuit employing a transformer having a control winding. 4,375,077, Cl. 363-91.000.
Williams, Thomas C., to Union Carbide Corporation. Polysulfide alkoxy silane coupling agents. 4,374,943, Cl. 523-211.000.
Williams, Tom R.: *See*—
Bright, Edward J.; Cherry, Hitesh; Dehoff, Robert E.; Fedder, James L.; and Williams, Tom R., 4,374,607, Cl. 339-253.00R.
Wilson, George L., to Kachur, Michal. Cleaning device for use with a dip stick. 4,374,445, Cl. 15-210.00B.
Wilson, Kenneth E.: *See*—
Hazen, George G.; Volante, Ralph P.; and Wilson, Kenneth E., 4,374,772, Cl. 260-245.20T.
Winslow, Louis E., to Minnesota Mining and Manufacturing Company. Pressure-sensitive adhesive tape. 4,374,883, Cl. 428-40.000.
Wintershall Aktiengesellschaft: *See*—
Lindorfer, Walter; Schulz, Walther; Wagner, Fritz; and Jahn-Held, Wilhelm, 4,374,735, Cl. 210-772.000.
Wisner, George R.: *See*—
Weise, Andrew P.; and Wisner, George R., 4,375,057, Cl. 340-21.000.
Witco Chemical Corporation: *See*—
Liauw, Koei-Liang; and Fisch, Michael H., 4,374,945, Cl. 524-114.000.
Wojcik, Thaddeus A.; Kobuck, Richard M.; and Antol, Ronald F., to Westinghouse Electric Corp. Decontamination apparatus. 4,374,462, Cl. 51-411.000.
Wolf, Klaus-Ulrich: *See*—
Heinemann, Henning; Ohlendorf, Heinrich-Wilhelm; and Wolf, Klaus-Ulrich, 4,374,846, Cl. 424-274.000.
Wood, Paul A. P., to Pifco Limited. Electric kettle. 4,375,028, Cl. 219-441.000.
Wood, Prentice J.: *See*—
Stout, James T.; and Wood, Prentice J., 4,374,561, Cl. 206-188.000.
Workman, Lester J. Method for controlling ectoparasites. 4,374,853, Cl. 424-303.000.
Worthington, Ralph E.; Smith, Michael A.; and Tobias, John M., to Uranium Recovery Corporation. Reductants for reducing metals in acid media. 4,374,805, Cl. 423-10.000.
Wuertele, Lothar: *See*—
Eckert, Guenter; Wuertele, Lothar; Petersen, Harro; Goeckel, Ulrich; and Fischer, Kurt, 4,374,872, Cl. 427-338.000.
Wuthrich, Hans-Rudolf; Speigel, Hubert; Lehner, Hermann; and Krebs, Peter, to Sprecher & Schuh AG. Gas-blast switch. 4,375,023, Cl. 200-148.00R.
Wyatt, Charles E., to Miletech, Inc. Metering device for fuel control system. 4,374,785, Cl. 261-51.000.
Wyoming Mineral Corporation: *See*—
Abodishish, Hani A.; and Ritchey, Robert W., 4,374,806, Cl. 423-10.000.
Wyrsch, Dieter: *See*—
Moilet, Herbert; and Wyrsch, Dieter, 4,374,914, Cl. 430-15.000.

Wyvratt, Matthew J.: *See*—
Harris, Elbert E.; Patchett, Arthur A.; Tristram, Edward W.; and Wyvratt, Matthew J., 4,374,829, Cl. 424-177.000.

Xerox Corporation: *See*—
Fisli, Tibor, 4,374,617, Cl. 355-8.000.
Pollack, Joel M., 4,374,707, Cl. 204-11.000.
Spinelli, Richard A.; and Bock, Edward C., 4,374,619, Cl. 355-57.000.

Yamada, Ryozo: *See*—
Ikeda, Eiji; Adachi, Tomohiro; Ito, Yoshihiro; Yamada, Ryozo; Taga, Akio; and Takashima, Shigeo, 4,374,695, Cl. 156-293.000.

Yamaguchi, Akira, to Nippon Chemical Industrial Co., Ltd. Chromium oxide-based sintered bodies and process for production thereof. 4,374,897, Cl. 428-446.000.

Yamaha Hatsudoki Kabushiki Kaisha: *See*—
Kobayashi, Takashi, 4,374,591, Cl. 280-21.00R.

Yamamoto, Kaname, to Tajima Roofing Co., Ltd. Process for making a built-up thermal insulating and bituminous waterproofing assembly. 4,374,687, Cl. 156-71.000.

Yamane, Tsuneo: *See*—
Komurasaki, Satoshi; Ueda, Atsushi; and Yamane, Tsuneo, 4,374,510, Cl. 123-418.000.

Yamanouchi Pharmaceutical Co., Ltd.: *See*—
Sindo, Tiuzi; Obara, Tadashi; and Adachi, Hidenari, 4,374,827, Cl. 424-92.000.

Yamasaki, Takanori: *See*—
Senda, Jihei; Inoue, Yoshihiro; Uenishi, Toshiaki; Harada, Hidefumi; Nakata, Kouji; Akagi, Akio; and Yamasaki, Takanori, 4,374,676, Cl. 106-303.000.

Yamauchi, Keiji: *See*—
Yasuda, Tokuro; and Yamauchi, Keiji, 4,374,895, Cl. 428-328.000.

Yamauchi, Takahiko, to Fujitsu Limited. Sense amplifier circuit. 4,375,039, Cl. 307-530.000.

Yano, Kozo: *See*—
Kuwagaki, Hiroshi; Yano, Kozo; and Takechi, Sadatoshi, 4,374,610, Cl. 350-357.000.

Yasuda, Tokuro; and Yamauchi, Keiji, to Oji Paper Co., Ltd. Electrostatic recording element. 4,374,895, Cl. 428-328.000.

Yavrouian, Andre H.: *See*—
Gupta, Amitava; Ingham, John D.; and Yavrouian, Andre H., 4,374,955, Cl. 525-281.000.

Yazu, Shuji: *See*—
Hara, Akio; and Yazu, Shuji, 4,374,900, Cl. 428-551.000.

Yellin, Bernard. Support and joiner means for shelving. 4,374,498, Cl. 108-114.000.

Yellin, Tobias O.; and Jones, Derrick F., to Imperial Chemical Industries Ltd.; and ICI Americas Inc. Antisecretory heterocyclic derivatives, process for their manufacture and pharmaceutical compositions containing them. 4,374,836, Cl. 424-251.000.

Yim, Marvin G. Starting transformer for gas lamps with open secondary. 4,375,045, Cl. 315-209.00R.

Yokoyama, Shigeki; Kishimoto, Shinzo; Toriya, Itsuki; and Nakamura, Taku, to Fuji Photo Film Co., Ltd. Antistatic silver halide photographic light-sensitive material. 4,374,924, Cl. 430-528.000.

Yoon, In B. Occlusion ring applicator. 4,374,523, Cl. 128-326.000.

Yoshida, Ikushi: *See*—
Abe, Mitsunobu; Yoshida, Ikushi; Matsuo, Munetsugu; and Hayakawa, Hiroshi, 4,374,682, Cl. 148-12.00C.

Yoshida Industry Co., Ltd.: *See*—
Ogasawara, Hirotake; Hatakeyama, Yoshiharu; and Ishiguro, Mitsuo, 4,374,796, Cl. 264-101.000.

Yoshida, Kenji, to Solic Co., Ltd. Device for adjusting position of drive element for opening and closing automatically horizontally opening and closing sliding door. 4,375,019, Cl. 200-52.00R.

Yoshida, Makoto: *See*—
Hayashi, Takao; Kato, Hajime; Miyamoto, Akio; and Yoshida, Makoto, 4,374,671, Cl. 106-21.000.

Yoshida, Ryo: *See*—
Konishi, Hiroyuki; Hino, Naganori; Matsumoto, Hiroshi; and Yoshida, Ryo, 4,374,662, Cl. 71-103.000.

Yoshio, Junichi, to Pioneer Electronic Corporation. Automatic music selecting device. 4,375,092, Cl. 369-41.000.

Yotsumoto, Toshihiro; and Koyama, Kazuo, to Bridgestone Tire Company Limited. Adhesive for polyester fibrous material. 4,374,962, Cl. 525-442.000.

Young, William P. Apparatus for pyrolysis of hydrocarbon bearing materials. 4,374,704, Cl. 202-117.000.

Yuill, Kenneth A.: *See*—
Davitt, Alan L.; and Yuill, Kenneth A., 4,374,686, Cl. 149-21.000.

Zacho, Per G.; and Ahrendsen, Kjeld, to Danfoss A/S. Control apparatus for thermal equipment particularly a heat engine. 4,375,029, Cl. 219-493.000.

Zabedi, Karim; and Alexander, Jeffrey C., to EFB Inc. Filter apparatus and method for collecting fly ash and fine dust. 4,374,652, Cl. 55-6.000.

Zaidan Hojin Biseibutsu Kagaku Kenkyu Kai: *See*—
Umezawa, Hamao; Takeuchi, Tomio; Tatsuta, Kuniaki; and Takahashi, Yoshikazu, 4,374,980, Cl. 536-6.400.

Zarr, William A.: *See*—
Goldberg, Ernest; Tremblay, Gray C.; and Zarr, William A., 4,374,492, Cl. 102-220.000.

Zega, Bogdan, to Battelle Development Corporation. Cathodic sputtering target including means for detecting target piercing. 4,374,722, Cl. 204-298.000.

Zenith Radio Corporation: *See*—
Lange, Howard G., 4,374,609, Cl. 350-128.000.
Lehnert, Stanley E., 4,375,046, Cl. 315-368.000.

Zeto, Robert J.; and Zimmerman, Franz X., to United States of America, Army. Dual chambered high pressure furnace. 4,375,027, Cl. 219-390.000.

Zhadanov, Sam. Water driven brush for cars and the like. 4,374,444, Cl. 15-29.000.

Zhitkov, Vladimir V.: *See*—
Azbukin, Vladimir G.; Balandin, Jury F.; Gorynin, Igor V.; Gluskin, Lev Y.; Zvezdin, Jury I.; Ignatenko, Alexandr G.; Krasnov, Alexandr N.; Melekhov, Rostislav K.; Osipova, Inna S.; Pavlov, Valery N.; Khokhlov, Alexandr A.; Stepanov, Ivan A.; Anfimov, Alexandr F.; Ardentov, Vasily V.; Burmakin, Viktor M.; Ignatov, Viktor A.; Rokhlin, Eduard A.; and Zhitkov, Vladimir V., 4,374,680, Cl. 148-2.000.

Zimmer, Franklin V.: *See*—
Funston, Joseph; Krell, William C.; and Zimmer, Franklin V., 4,374,672, Cl. 106-97.000.

Zimmerman, Franz X.: *See*—
Zeto, Robert J.; and Zimmerman, Franz X., 4,375,027, Cl. 219-390.000.

Zvezdin, Jury I.: *See*—
Azbukin, Vladimir G.; Balandin, Jury F.; Gorynin, Igor V.; Gluskin, Lev Y.; Zvezdin, Jury I.; Ignatenko, Alexandr G.; Krasnov, Alexandr N.; Melekhov, Rostislav K.; Osipova, Inna S.; Pavlov, Valery N.; Khokhlov, Alexandr A.; Stepanov, Ivan A.; Anfimov, Alexandr F.; Ardentov, Vasily V.; Burmakin, Viktor M.; Ignatov, Viktor A.; Rokhlin, Eduard A.; and Zhitkov, Vladimir V., 4,374,680, Cl. 148-2.000.

Zwick Energy Research Organization, Inc.: *See*—
Zwick, Eugene B.; Nguyen, Dung D.; Brigham, William D.; and Hoffman, Kenneth, 4,374,637, Cl. 431-183.000.

Zwick, Eugene B.; Nguyen, Dung D.; Brigham, William D.; and Hoffman, Kenneth, to Zwick Energy Research Organization, Inc. Burner construction. 4,374,637, Cl. 431-183.000.

LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 22ND DAY OF FEBRUARY, 1983

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

Carter, Michael C.; and Steer, Philip J., to National Research Development Corporation. Apparatus for indicating uterine activity in labor. Re. 31,158, Cl. 364-415.000.

Caterpillar Tractor Co.: *See*—
Hammond, James T.; and Parks, John H., Re. 31,154, Cl. 74-411.000.

Crocker, Samuel S., to Schlumberger Technology Corporation. Pump down system for placing and retrieving subsurface well equipment. Re. 31,155, Cl. 166-117.500.

Dessert, Richard. Energy efficient passenger vehicle. Re. 31,156, Cl. 180-2.00A.

Hammond, James T.; and Parks, John H., to Caterpillar Tractor Co. Flexible drive. Re. 31,154, Cl. 74-411.000.

Kinjo, Hisao, to Victor Company of Japan, Ltd. Tracking control apparatus for use in apparatus for reproducing video signals from a rotary recording medium. Re. 31,160, Cl. 369-124.000.

Maxon Industries, Inc.: *See*—
Perkins, William V., Re. 31,157, Cl. 414-545.000.

National Research Development Corporation: *See*—
Carter, Michael C.; and Steer, Philip J., Re. 31,158, Cl. 364-415.000.

Parks, John H.: *See*—
Hammond, James T.; and Parks, John H., Re. 31,154, Cl. 74-411.000.

Perkins, William V., to Maxon Industries, Inc. Self-folding platform. Re. 31,157, Cl. 414-545.000.

Schlumberger Technology Corporation: *See*—
Crocker, Samuel S., Re. 31,155, Cl. 166-117.500.

Sicre, Jean-Luc, to Societe Francaise d'Equipement pour la Navigation Aerienne. Flying method and system using total energy for an aircraft. Re. 31,159, Cl. 364-427.000.

Societe Francaise d'Equipement pour la Navigation Aerienne: *See*—
Sicre, Jean-Luc, Re. 31,159, Cl. 364-427.000.

Steer, Philip J.: *See*—
Carter, Michael C.; and Steer, Philip J., Re. 31,158, Cl. 364-415.000.

Victor Company of Japan, Ltd.: *See*—
Kinjo, Hisao, Re. 31,160, Cl. 369-124.000.

LIST OF DESIGN PATENTEES

AB Bahco Verktyg: *See*—
Brunosson, Bengt; and Erlandsson, Lars, 268,002, Cl. D8-58.000.

AB Jarnarmatur: *See*—
Pettersson, Dan A. B., 267,997, Cl. D32-66.000.

Albertson, Robert V. Forced air waste oil incinerator. 268,050, 2-22-83, Cl. D23-92.000.

Appel, Mel; and Kress, George, to Appel, Mel. Toy xylophone. 268,038, 2-22-83, Cl. D21-64.000.

Appel, Mel; and Kress, George, to Appel, Mel. Toy chain saw. 268,042, 2-22-83, Cl. D21-120.000.

Asahi Yukizai Kogyo Kabushiki Kaisha: *See*—
Ueda, Tomoyuki, 268,048, Cl. D23-19.000.
Ueda, Tomoyuki, 268,049, Cl. D23-19.000.

Associated Products, Inc.: *See*—
Levine, Noel, 268,005, Cl. D8-367.000.

Ault, Charles M., to Termiflex Corporation. Front panel for a keyboard and display unit. 268,030, 2-22-83, Cl. D14-115.000.

Balz, Barry E. Stripping tool for use on concrete forms or the like. 268,001, 2-22-83, Cl. D8-14.000.

Barr, Josef J. Finger ring or similar article. 268,015, 2-22-83, Cl. D11-39.000.

Barrera, Gilbert E. Tooth paste dispenser. 267,993, 2-22-83, Cl. D6-87.000.

Batto, Paul C.: *See*—
Bryk, Charles S.; and Batto, Paul C., 268,011, Cl. D10-15.000.

Bell, Donald L., to Human Performance Systems, Inc. Rotational exerciser. 268,046, 2-22-83, Cl. D21-198.000.

Bevilaqua, Ernest M.; McCroskery, Allan L.; and Knerr, Theodore N., to Otis Elevator Company. Control panel for elevator systems. 268,025, 2-22-83, Cl. D13-35.000.

Bevilaqua, Ernest M.; McCroskery, Allan L.; and Knerr, Theodore N., to Otis Elevator Company. Control panel for elevator systems. 268,026, 2-22-83, Cl. D13-35.000.

Bisacca, Mildred J.: *See*—
Witt, Frank H., Jr., 268,008, Cl. D9-307.000.

Blackburn, Bruce N., to Champion International Corporation. Print font. 268,035, 2-22-83, Cl. D18-24.000.

Block, Alvin, to Intimate Jewels, Inc. Earring. 268,016, 2-22-83, Cl. D11-75.000.

Blue Box Toy Factory, Limited: *See*—
Ng, Cheuk S., 268,040, Cl. D21-109.000.

Boyd, Jeffrey A., to General Electric Company. Battery charger. 268,023, 2-22-83, Cl. D13-5.000.

Bridgeport Metal Goods Manufacturing Company, The: *See*—
Moore, Arthur H., 268,055, Cl. D26-112.000.

Brunosson, Bengt; and Erlandsson, Lars, to AB Bahco Verktyg. Wire nippers. 268,002, 2-22-83, Cl. D8-58.000.

Bryk, Charles S.; and Batto, Paul C., to Texasgulf Inc. Desk chronometer. 268,011, 2-22-83, Cl. D10-15.000.

Buhk, Randall P.; Hozeski, Kenneth W.; and Karrip, Alex, to Steelcase Inc. Chair. 267,989, 2-22-83, Cl. D6-30.000.

Buhk, Randall P.; Hozeski, Kenneth W.; and Karrip, Alex, to Steelcase Inc. Chair. 267,990, 2-22-83, Cl. D6-31.000.

Bullard, Harvey E. Animated display. 267,995, 2-22-83, Cl. D6-172.000.

Cagan, Bernard J.; and McQuary, Kenneth L., to Placo Products Company. Dart. 268,036, 2-22-83, Cl. D21-49.000.

Campbell-Kelly, Adrian R.; Fjelstad, Hanne; Gravas, Lasse; Reinemo, Erik; and Sekkenes, Johan. Feed supplement dispenser for piglets. 268,056, 2-22-83, Cl. D30-15.000.

Champion International Corporation: *See*—
Blackburn, Bruce N., 268,035, Cl. D18-24.000.

Chance, Gary S., to Docutel Corporation. Banking machine terminal. 268,062, 2-22-83, Cl. D99-28.000.

Charette, Eugene G. Solarium with connecting dressing room and tanning room. 268,054, 2-22-83, Cl. D24-39.000.

Chase, David O., to John D. Brush & Company, Inc. Fire resistant container. 268,063, 2-22-83, Cl. D99-28.000.

Cincinnati Milacron Inc.: *See*—
Stackhouse, Theodore H., 268,033, Cl. D15-199.000.

Crespi, Gabriella. Openable table. 267,988, 2-22-83, Cl. D6-27.000.

Dellinger, Henry P. Rotary cultivating tool. 268,000, 2-22-83, Cl. D8-08.000.

DeLoye, Raymond H.: *See*—
Matz, Richard C.; Kaminski, Donald F.; and DeLoye, Raymond H., 268,032, Cl. D15-85.000.

Docutel Corporation: *See*—
Chance, Gary S., 268,062, Cl. D99-28.000.

Dunlop Limited: *See*—
Major, Douglas J.; and Marriott, Peter R., 268,018, Cl. D12-146.000.
Major, Douglas J.; Marriott, Peter R.; and Hart, Claude A., 268,019, Cl. D12-151.000.

Duvoux, Pierre G., to Equipements Automobiles Marchal. Windshield wiper. 268,020, 2-22-83, Cl. D12-155.000.

Eadie, Richard P., to Vanderburgh Enterprises. Shower head. 268,052, 2-22-83, Cl. D23-35.000.

Ekuan, Kenji, to Nippon Gakki Seizo Kabushiki Kaisha. Record player. 268,028, 2-22-83, Cl. D14-14.000.

EL CU S.p.A.: *See*—
Zappa, Carlo, 268,031, Cl. D15-69.000.

ELPO Industries, Inc.: *See*—
Kowalski, Eugene, 267,996, Cl. D7-101.000.

Equipements Automobiles Marchal: *See*—
Duvoux, Pierre G., 268,020, Cl. D12-155.000.

Erlandsson, Lars: *See*—
Brunosson, Bengt; and Erlandsson, Lars, 268,002, Cl. D8-58.000.

Fielder, Jean C.: *See*—
Litt, Kenneth C.; and Fielder, Jean C., 268,024, Cl. D13-11.000.

Fisher, Charles R. Data collection terminal for authorization control system or the like. 268,029, 2-22-83, Cl. D14-107.000.

Fjelstad, Hanne: *See*—

Campbell-Kelly, Adrian R.; Fjelstad, Hanne; Gravas, Lasse; Reinemo, Erik; and Sekkenes, Johan, 268,056, Cl. D30-15.000.
Flower, Milton O., to Max Factor & Co. Brush for applying makeup. 267,986, 2-22-83, Cl. D4-25.000.
Foster Grant Corporation: *See*—
Shelton, Robert N., 267,992, Cl. D6-85.000.
Fulster, Chris. Duck decoy with stabilizing sponsons and keel. 268,047, 2-22-83, Cl. D22-21.000.
General Electric Company: *See*—
Boyd, Jeffrey A., 268,023, Cl. D13-5.000.
Lenz, Henry G.; and Stewart, Earl K., 268,022, Cl. D13-3.000.
General Ribbon Corporation: *See*—
Van Voy, Marv, 268,034, Cl. D18-12.000.
Gravas, Lasse: *See*—
Campbell-Kelly, Adrian R.; Fjelstad, Hanne; Gravas, Lasse; Reinemo, Erik; and Sekkenes, Johan, 268,056, Cl. D30-15.000.
GRRN Co.: *See*—
Witt, Frank H., Jr., 268,008, Cl. D9-307.000.
Harmon, Nora R., to Health-Mor Inc. Hand suction cleaner. 268,057, 2-22-83, Cl. D32-18.000.
Hart, Claude A.: *See*—
Major, Douglas J.; Marriott, Peter R.; and Hart, Claude A., 268,019, Cl. D12-151.000.
Health-Mor Inc.: *See*—
Harmon, Nora R., 268,057, Cl. D32-18.000.
Hirsh, Aaron. Container for perfume. 268,009, 2-22-83, Cl. D9-354.000.
Hozeski, Kenneth W.: *See*—
Buhk, Randall P.; Hozeski, Kenneth W.; and Karrip, Alex, 267,989, Cl. D6-30.000.
Buhk, Randall P.; Hozeski, Kenneth W.; and Karrip, Alex, 267,990, Cl. D6-31.000.
Hudson, Gary: *See*—
Sears, William J.; and Hudson, Gary, 268,014, Cl. D11-30.000.
Human Performance Systems, Inc.: *See*—
Bell, Donald L., 268,046, Cl. D21-198.000.
Intimate Jewels, Inc.: *See*—
Block, Alvin, 268,016, Cl. D11-75.000.
Iwahashi, Wataru: *See*—
Takashima, Hiroshi; Usami, Seiji; Iwahashi, Wataru; and Ohi, Hiroshi, 268,027, Cl. D14-2.000.
John D. Brush & Company, Inc.: *See*—
Chase, David O., 268,063, Cl. D99-28.000.
Kaminski, Donald F.: *See*—
Matz, Richard C.; Kaminski, Donald F.; and DeLoye, Raymond H., 268,032, Cl. D15-85.000.
Karrip, Alex: *See*—
Buhk, Randall P.; Hozeski, Kenneth W.; and Karrip, Alex, 267,989, Cl. D6-30.000.
Buhk, Randall P.; Hozeski, Kenneth W.; and Karrip, Alex, 267,990, Cl. D6-31.000.
Kinnebrew, Joseph E., IV. Litter container. 268,058, 2-22-83, Cl. D34-01.000.
Knerr, Theodore N.: *See*—
Bevilaqua, Ernest M.; McCroskery, Allan L.; and Knerr, Theodore N., 268,025, Cl. D13-35.000.
Bevilaqua, Ernest M.; McCroskery, Allan L.; and Knerr, Theodore N., 268,026, Cl. D13-35.000.
Kowalski, Eugene, to ELPO Industries, Inc. Food mincer. 267,996, 2-22-83, Cl. D7-101.000.
Kozlowski, Joseph A. Heat distributor. 268,053, 2-22-83, Cl. D23-151.000.
Kracke, Donald R. Trash container. 268,059, 2-22-83, Cl. D34-4.000.
Kress, George: *See*—
Appel, Mel; and Kress, George, 268,038, Cl. D21-64.000.
Appel, Mel; and Kress, George, 268,042, Cl. D21-120.000.
Landan, Edward C.: *See*—
Leffler, Dennis F.; Truette, Danny M.; and Landan, Edward C., 267,987, Cl. D6-22.000.
Leffler, Dennis F.; Truette, Danny M.; and Landan, Edward C., to Pelton & Crane Company, The. Treatment chair. 267,987, 2-22-83, Cl. D6-22.000.
Lemmeyer, Gary R., to Quaker Oats Company, The. Toy printing member. 268,044, 2-22-83, Cl. D21-127.000.
Lemmeyer, Gary R., to Quaker Oats Company, The. Toy print holder. 268,045, 2-22-83, Cl. D21-127.000.
Lenz, Henry G.; and Stewart, Earl K., to General Electric Company. Dynamoelectric machine end cap. 268,022, 2-22-83, Cl. D13-3.000.
Levine, Noel, to Associated Products, Inc. Shank portion of a shower curtain hook or the like. 268,005, 2-22-83, Cl. D8-367.000.
Levine, Rosalie S.: *See*—
Witt, Frank H., Jr., 268,008, Cl. D9-307.000.
Litt, Kenneth C.; and Fielder, Jean C., to Pace Incorporated. Power supply unit. 268,024, 2-22-83, Cl. D13-11.000.
Luzich, Norman E., to Pizza Hut, Inc. Food product assembly table. 267,994, 2-22-83, Cl. D6-160.000.
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319	4,374,817
388	4,374,818
570	4,374,819
588	4,374,820

CLASS 424

4	4,374,821
49	4,374,822
52	4,374,823
58	4,374,824
70	4,374,825
80	4,374,826
92	4,374,827
177	4,374,828
	4,374,829
	4,374,830
180	4,374,831
	4,374,832
225	4,374,833
246	4,374,834
250	4,374,835
251	4,374,836
253	4,374,837
256	4,374,838
263	4,374,839
	4,374,840
	4,374,841
269	4,374,842
270	4,374,843
	4,374,844
273 R	4,374,845
274	4,374,846
	4,374,847
	4,374,848
	4,374,849
	4,374,850
285	4,374,851
289	4,374,852
303	4,374,853
311	4,374,854
313	4,374,855
317	4,374,856
	4,374,857

CLASS 425

7	4,374,633
65	4,374,634
441	4,374,635
589	4,374,636

CLASS 426

5	4,374,858
14	4,374,859
28	4,374,860
42	4,374,861
94	4,374,862
553	4,374,863
594	4,374,864
599	4,374,865

CLASS 427

10	4,374,866
38	4,374,867
97	4,374,868
	4,374,869
120	4,374,870
236	4,374,871
338	4,374,872
349	4,374,873
379	4,374,874
386	4,374,875
443.1	4,374,876

CLASS 428

9	4,374,877
35	4,374,878
	4,374,879
36	4,374,880
	4,374,881
	4,374,882
40	4,374,883
95	4,374,884
160	4,374,885
172	4,374,886
195	4,374,887
198	4,374,888
207	4,374,889
212	4,374,890
220	4,374,891
233	4,374,892
263	4,374,893
288	4,374,894
328	4,374,895
349	4,374,896
446	4,374,897
447	4,374,898
514	4,374,899
551	4,374,900
607	4,374,901
621	4,374,902
627	4,374,903
648	4,374,904
691	4,374,905

CLASS 429

44	4,374,906
57	4,374,907
140	4,374,908
174	4,374,909
197	4,374,910

CLASS 430

5	4,374,911
	4,374,912
6	4,374,913
15	4,374,914
22	4,374,915
31	4,374,916
94	4,374,917
115	4,374,918
220	4,374,919
331	4,374,920
338	4,374,921
383	4,374,922
410	4,374,923
528	4,374,924

CLASS 431

183	4,374,637

CLASS 435

7	4,374,925
23	4,374,926
68	4,374,927
	4,374,928
104	4,374,929
190	4,374,930

CLASS 436

63	4,374,644

CLASS 441

69	4,374,638

CLASS 445

7	4,374,450
22	4,374,451
66	4,374,452

CLASS 455

603	4,375,106

CLASS 501

13	4,374,931

CLASS 521

32	4,374,932
64	4,374,933
112	4,374,934
173	4,374,935

CLASS 523

116	4,374,936
	4,374,937
124	4,374,938
139	4,374,939
176	4,374,940
206	4,374,941
210	4,374,942
211	4,374,943

CLASS 524

66	4,374,944
114	4,374,945
271	4,374,946
398	4,374,947
516	4,374,948
720	4,374,949
765	4,374,950

CLASS 525

73	4,374,951
87	4,374,952
153	4,374,953
207	4,374,954
281	4,374,955
296	4,374,956
314	4,374,957
384	4,374,958
394	4,374,959
436	4,374,960
439	4,374,961
442	4,374,962
486	4,374,963
510	4,374,965
540	4,374,964

CLASS 526

62	4,374,966

CLASS 528

15	4,374,967
54	4,374,968
69	4,374,969
79	4,374,970
167	4,374,971
185	4,374,972
191	4,374,973
219	4,374,974
272	4,374,975
339.5	4,374,976
348	4,374,977
	4,374,978

CLASS 536

6.4	4,374,979
	4,374,980
24	4,374,981

CLASS 544

16	4,374,982
24	4,374,983
80	4,374,984
190	4,374,985
221	4,374,986
260	4,374,987
281	4,374,988
339	4,374,989
376	4,374,990

CLASS 546

245	4,374,991
298	4,374,992

CLASS 548

141	4,374,993
251	4,374,994
309	4,374,995
342	4,374,996
422	4,374,774
539	4,374,997

CLASS 549

430	4,374,998
453	4,374,999

CLASS 560

25	4,375,000
128	4,375,001

CLASS 564

445	4,375,002
492	4,375,003

CLASS 568

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878	4,375,005

CLASS 570

105	4,375,006

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	27	267,988
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	31	267,990
	57	267,991
	85	267,992
	87	267,993
	160	267,994
	172	267,995
D7—	101	267,996
D8—	08	268,000
	14	267,999
		268,001
	58	268,002
	302	268,003
	331	268,004
	367	268,005
	393	268,006
	403	268,007
D9—	307	268,008
	354	268,009
	457	268,010
D10—	15	268,011
	106	268,012
D11—	27	268,013
	30	268,014
	39	268,015
	75	268,016
D12—	130	268,017
	146	268,018
	151	268,019
	155	268,020
	181	268,021
D13—	3	268,022
	5	268,023
	11	268,024
	35	268,025
		268,026
D14—	2	268,027
	14	268,028
	107	268,029
	115	268,030
D15—	69	268,031
	85	268,032
	199	268,033
D18—	12	268,034
	24	268,035
D21—	49	268,036
	59	268,037
	64	268,038
	86	268,039
	109	268,040
	114	268,041
	120	268,042
	124	268,043
	127	268,044
		268,045
	198	268,046
D22—	21	268,047
D23—	19	268,048
		268,049
	35	268,052
	92	268,050
	97	268,051
	138.5	267,998
	151	268,053
D24—	39	268,054
D26—	112	268,055
D30—	15	268,056
D32—	18	268,057
	66	267,997
D34—	4	268,059
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	40	268,061
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		268,063

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	4,374,476		4,374,661		4,375,025		4,374,518		4,375,089		4,374,650
	4,374,580		4,374,667		4,375,056		4,374,530	49 :	4,374,470		4,374,888
	4,374,583		4,374,673		4,375,071		4,374,543		4,375,069		4,374,921
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